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Kinesthetic Imagery and Choreographic Praxis

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Submitted for the degree of Doctor of Philosophy at Trinity Laban Conservatoire of Music and Dance for the PhD in Dance [Creative Practice], April 2014.

Submitted to City University, Northampton Square, London EC1V 0HB.

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Declaration

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Abstract

The aim of this research project is to investigate the practical application of some ideas regarding how dancers can create certain types of mental images that are formed through their kinesthetic perception, which we shall define as ‘kinesthetic images’, and to study the spatial or geometric structures that are often utilized in choreographic and pedagogical dance praxis. The term *kinesthetic image* is a label for a certain types of mental imagery that are generated through the sensation of moving body, as well as dynamic qualities that are kinesthetically perceived from movement. Dancers can create mental images from these type of kinesthetic experiences by enhancing their sensory awareness and sensorimotor knowledge, which are both innate and acquired through training.

My dance practice also concerns a development of an improvisation method in which dancers explore an interaction between these kinesthetic images and a visualization of *morphodynamic volume* (hereafter MDV), which is a three-dimensional volume in a constant state of flux. The term *intensive space* will be introduced to give a definition to this related type of spatial categorization, one which involves continuous and dynamic transformations of both danced space and the images associated with it, such as stretching, folding and connectivity. This spatial paradigm will be contrasted with its opposite, namely *extensive* spaces or geometries, which involve the division and subdivision of danced space in terms of metric properties like points, lines, and planes.

The first chapter is a review of how choreographically structured movement has been historically conceived and created using spatial concepts and imagery which involve the spatial structures of these types of extensive geometries. This historical analysis commences during the Enlightenment, at a time when the aesthetics and basic movement vocabulary of classical ballet were in a state of genesis. The discussion of geometric paradigms in dance practice continues through this chapter chronologically through to modernity, looking at the characteristics of the choreographic practices of George Balanchine, Rudolf Laban, Merce Cunningham, and William Forsythe.

The second chapter discusses the *Improvisation Technologies* conceived by Forsythe as a paradigmatic example of the utilization of kinesthetic images and extensive geometry for the purposes of movement creation during dancers’ improvisation. This analysis of Forsythe’s methodology brings forth with it questions as to how choreographic praxis can utilize intensive space as an alternative geometric paradigm with which dancers can interact for the generation of movement. This discussion is rooted in some theoretical elements, such as phenomenology, the philosophy of perception, cognitive science, and mathematical topology, which creates a theoretical foundation for an improvisational practice that suggests intensive spatial structure as an alternative ideational mechanism for movement generation.

The third chapter is a documentation of the chronological development of a pedagogical improvisation method, based on these concepts of kinesthetic imagery and intensive spatial structuring. For the purposes of investigating both choreographic and pedagogical aspects, an extensive period of practice-based research resulted in the production of two improvisatory performances entitled *Mix:01* and *Mix:02*. These performances are discussed and are coupled with the critical observation of the preceding series of studio sessions. Both the performances and the creative processes that led to them are subsequently analysed for the purposes of isolating effective practice.

Introduction

Dancers idiomatically use imagery to create and structure movement. As cognitive scientist David Kirsh states: ‘we found that both choreographer and dancer rely on imagery in the visual, somato-sensory, tactile, and motor systems to create novel movement’ (Kirsh, 2011, 2). In contemporary choreography, it is common for dancers to improvise and generate movement material in response to specific tasks and instructions (DeLahunta, 2011, 244). William Forsythe’s *Improvisation Technologies* (Forsythe, 2003), Trisha Brown’s *Locus (1975)* (Brown and Rosenberg, 2009), and some works of Wayne McGregor’s are all examples of dances that utilize tasks that involve various types of imagery. These images can be imagined as real objects, scenery, or abstract geometric configurations (DeLahunta, 2011, 245).

What is important to notice about the use of mental imagery in both dance creative and pedagogical practice is that the ‘mental imagery’ used by dancers is not just related to the visual sensory modality (DeLahunta, 2011). In fact, neuroscientist Antonio Damasio has argued that mental images are not related to ‘pictures in one’s head’, and indicates that there can be images or imaginings that are formed via other sensory modalities other than seeing, such as hearing and smell (Damasio, 1999, 318).

Before commencing the further discussion of the use of imagery in dance practice, therefore, we need to carefully define the terms ‘imagery’ and/or ‘image(s)’ that are key to this research project. In what follows, the word ‘imagery’ is used when describing the phenomenon of forming images in general, for example via a sentence like ‘dancers use various kinds of imagery’. When specific modal instances and specific images themselves are meant, for example ‘visual image’ or ‘my images of a line’, then the words ‘image’ or ‘images’ are used. What my research project focuses on is *kinesthetic images*, which are images that are formed via kinesthetic perception, through visualizations and simulations

that involve both sensations of moving body and dynamic qualities that are kinesthetically perceived from movement.

Of the various types of kinesthetic image that dance practitioners utilize, my research project concerns those which specifically involve spatial and geometric concepts. One type of imagery task, ‘spatial-praxis imagery’ (May et al, 2011, 407) can be observed in the choreographic practices of both Forsythe and McGregor. This imagery task involves ‘imagining physical objects and actions in a spatial frame of reference’ (407). Scott DeLahunta discusses the nature of creative tasks in which dancers interact with spatial characteristics of an imagined object. He states: ‘dancers approach them in the spirit of creative problem solving, with task constraints limiting the decision making space’ (DeLahunta, 2011, 245). Similarly, Kirsh highlights a cognitive aspect of dancers’ improvisation that involves the imaginative creation of external geometric structures. He explains, ‘when we interact with our environment for epistemic reasons, we often interact to create scaffolds for thought, thought supports we can lean on. But we also create external elements that can actually serve as vehicles for thoughts. We use them as things to think with’ (Kirsh, 2010, 445). These studies already suggest that the visualization of spatial concepts can facilitate a dancers’ creative process in terms of the generation of movement.

My dance practice also applies both conceptual aspects and the visualization of spatial form in a dancers’ generation of movement. However, in my improvisation technique, the main focus is on the interaction that dancers create between mental images and kinesthetic images evoked through the sensations of their own moving body. This is unlike the tasks of Forsythe and McGregor, where visualized mental images are used, and often remain, as external structures. In my practice, dancers visualize mental images that are related with the sensations of the moving body. And, through training, they learn to

perceive the process of visualization as a kinesthetic feeling rather than as a conceptualization of an external structure. Dancers embody this reciprocal relationship between visualized image and movement sensation through a series of tasks and a group improvisation, which is informed by somatic dance practices.

The use of mental imagery for facilitating the execution of movement is also widespread in the field of somatic movement education. Somatic practices such as *Body-Mind Centering* (BMC), *Ideokinesis* and *Skinner Releasing Technique* utilize mental imagery to change habitual motor patterns involving postural alignment and muscle use (Eddy, 2006; Kearns, 2010; Emslie, 2009). For example, BMC teaching sessions often commence with skeletal models, pictures and photo images that depict information about anatomy, kinesiology and physiology in order to facilitate students' learning (Eddy, 2006, 88). In Ideokinesis, anatomical images often relate to 'metaphorical imagery', which involves 'imagining objects or ideas that have a relationship to a skill or task; for example, while jumping, imagining feeling one's pelvis as a bouncing ball' (Overby, 2011, 10).

In my practice dancers also learn to break their habitual movement patterns by utilizing mental imagery, which is tied with movement sensation. What differentiates my practice from other somatic practices is that dancers do not relate the sensation of movement with their preconceived anatomical image and skeletal knowledge. Instead, they feed it into the visualization of an abstract image of *MDV*, a three-dimensional volume in a constant state of flux. I focus on the use of this particular mental image because *MDV* can change its spatial form completely, unlike the images related to a body as a e.g. an anatomical organism. In my practice, dancers focus on the interaction between visually-imagined mental *MDV* and movement-generated kinesthetic images. What is it that the dancers feel and interact with through an improvisation based on the spatial characteristic of *MDV*?

And how does the spatial form of *MDV* differ from other spatial forms? We will proceed to answer these questions later on.

For the purposes of categorizing choreographic and pedagogical practices that utilize spatial concepts, two types of spatial paradigm, namely *extensive* and *intensive* are introduced. These terms originated in the field of thermodynamics and are used for classifying the physical properties of matter in terms of the dependency of these properties on the size or amounts, of the substances involved. To explain further, the extensive properties of a substance, such as length, volumes, and weight depend on the size of the material, and can be added, divided, and measured. For example, the volume of a cup of water can be divided in two cups of half volume. In contrast, there also exist the so-called intensive properties of a substance, such as temperature, density, viscosity, and elasticity. In contrast to extensive properties, intensive properties preserve the state of a physical system irrespective of variants to the entire system. For example, water starts boiling at the same critical point of 100 degrees irrespective to the amount of the size of the cup, whereas the amount of energy it requires to create boiling water varies, because this is an extensive property. The *International Union of Pure and Applied Chemistry* defines these terms more rigorously as ‘A quantity that is additive for independent, noninteracting subsystems is called extensive’ and ‘A quantity that is independent of the extent of the system is called intensive’ (Cohen et al, 2007, 6).

In a related vein, Manuel DeLanda has introduced the idea of *extensive space* and *intensive space*, which are different ways of conceptualizing space, and thus are related to human subjectivity and the way it structures and constitutes the world (DeLanda, 2005, 80). For example, we can organize space extensively by fixing and dividing lengths and volumes between points, and utilizing other metric properties such as lines and planes. By contrast, we can also categorize the same space as intensive space in terms of other

operations like stretching, folding, bending and other types of continuous transformation (DeLanda, 2002, 22). DeLanda states: '[A] space is not just a set of points, but a set together with a way of binding these points together into *neighbourhoods* through well-defined relations of *proximity or contiguity*' (DeLanda, 2002, 22). This idea of intensive space supports our understanding of the spatial characteristics of the abstract form dancers interact with during this improvisation.

In Deleuzian ontology, this distinction between metric and hence divisible spaces and nonmetric and continuous space is also discussed in relation to human sensitivity.

Deleuze states, 'There is an extraordinarily fine topology that relies not on points or objects but rather on haecceities, on sets of relations (winds, undulations of snow or sand, the song of the sand or the creaking of the ice, the tactile qualities of both). It is a tactile space, or rather 'haptic', a sonorous much more than a visual space' (Deleuze and Guattari, 1987: 382). Here, the conception of space is related to how we perceive our living environment through multi-layered experiential process, and not just the reliance on visual perception. Claire Colebrook further explains the features of these two spatial categorization in terms of Deleuzian philosophy: 'In contrast with the idea that space or the world is constructed from sense-- socially or culturally constituted-- spatiality opens sense, for any location bears the potential to open up new planes, new orientations. Rather than seeing space as effected from sense, as realized from a system of orientation or intending, Deleuze sees spatiality as an opening of sense, as the potential to create new problems' (Colebrook, 2005, 196).

It is important to mention here that this terminology of *extensive space* and *intensive space* represents ways we think about space, and does not suggest that the property of extensivity and intensivity exists in space, considered as an object in itself. Seen from Kantian perspective, the 'transcendental' *a priori* categories of understanding permit our

sensible interactions with reality and the ordering of our representative mechanisms. In other words, geometric (spatial) categories mentally organize our sense of space. Kant suggests that it is our perception of space that is structured, not the living environment itself.

My major claim is that choreographically structured movement has been historically conceived and created by using spatial concepts and imagery which involve the spatial structure of *extensive* geometries such as lines, planes and volumes. And secondly, instead of embedding of the body in danced space in terms of these geometric shapes with divisible and metric properties, the research project investigates how abstract mental representations with *intensive* properties, which are continuously moving, and which I call *MDV*, can be utilized as an alternative spatial structure for dancers to organize their movement creation. What I am interested in doing in my dance practice is to create a training method in which dancers can create an interaction between this visually-imagined *MDV* and the sensation of their own moving bodies, which becomes a process of generating movement. In addition, dancers are also perceiving the movement of others, and constantly renewing their kinesthetic images through this intersubjective encounter. Dancers can then mentally *deform* the kinesthetic image newly visualized by moving their body and simulating the qualitative difference felt in their movement, from which dancers again construct different kinesthetic images. An ability to generate movement through this looping mechanism can perhaps organize a type of dance improvisation which constitutes an alternative to methodologies involving the use of the images of extensive geometric structures. Through my training method, dancers learn to organize both individual and group improvisation tasks based on both the imagination and sensation of movement. Through their own improvisation, they gradually alter their perception to experience the movement of their own and others, which can open up the potentiality of new forms of dance expression.

This thesis is structured into five parts: an Introduction; Chapters One to Three; a Conclusion and Glossary of Terms. The main task of Chapter One is to historicise the use of extensive geometric ideas in dance practice, beginning with ideas surrounding the historical genesis of the artform of ballet. During the Enlightenment period, when the basic movement vocabulary of classic ballet was formalized and disseminated, patterns of danced movement were forced to accommodate themselves to a particular spatial environment, namely the proscenium stage, and the dancing body was thus embedded into three-dimensional extensive structures. This traditional idea of organizing stage space has been challenged by modern choreographers and dance thinkers, such as Rudolf Laban, George Balanchine and Merce Cunningham. A historical analysis of danced space leads chronologically to an account of William Forsythe's *Improvisation Technologies*, which exemplify a process for dancers' improvisation that involves both an imaginative projection of geometric shapes, and an interaction with them, for generating movement. This methodology has directly influenced my own dance practice.

Chapter Two provides a theoretical foundation for my personal dance practice by introducing concepts related to imagining and the process of kinesthetically experiencing movement. There are two main ideas that recur throughout this chapter which relate to a dancers' experience of forming kinesthetic images. One is that dancers can both *perceive* and *feel* their own movement. In other words, dancers can see their moving bodies as if they were ordinary objects moving through space, but they can also kinesthetically experience their own movement in terms of its felt dynamic qualities, such as the sense of effort, and the way we release force and energy (Sheets-Johnstone, 2011, 123).

The second key idea is that dancers can also *imagine* and *anticipate* their future *possible* movements, which means that the movements felt and perceived involve not only movements physically carried out by the body, but also imaginative projection of what it

would feel like to move in such and such a way. Philosopher Evan Thompson claims, drawing on research in the cognitive sciences and the phenomenology of Edmund Husserl, that imagination is an activity in which we “visualize an object or scene by mentally enacting or entertaining a possible perceptual experience of that object or scene” (Thompson, 2007, 269). This suggests that when we imagine something we have the ability to simulate the experience of that something in perception, whether it has actually happened or not. The type of kinesthetic image used in my improvisation method involves an ideational projection of an intensive spatial structure within the process of the virtual simulation and the projection of movement. The rest of Chapter Two looks at how this spatial concept can be intertwined with kinesthetic images, using the example of William Forsythe’s Improvisation Technologies.

Chapter Three presents documentation of the studio-based development of an improvisation method based on kinesthetic imagery and intensive spatial structuring. For the purpose of investigating both the choreographic and pedagogical aspects of the research, two dance improvisatory performances, *Mix:01* and *Mix02*, were realized. After each rehearsal and performance, I reflected and analyzed the creative tasks and directions I gave to dancers and also collected dancers’ comments, findings and photo images. Readers can also see video footage of the rehearsals and performances on the attached DVD.

Finally, in the Conclusion I summarize the main findings discussed in Chapter Three. I will also discuss the possibility for future research that could potentially arise from the current project.

Chapter 1

Geometry as a Choreographic Determinant

In the Introduction, extensive and intensive space were discussed as two different categories of space; one that is divisible and measurable, one that is continuous and in a constant state of flux. We also discussed how this research project concerns an application of intensive spatial structures as an alternative spatial category to organize a dancers' creation of movement.

It is important to note that the ideas of extensive and intensive space are not discussed solely in terms of the spatial characteristics of *MDV*. This is the type of kinesthetic image dancers interact with in my dance practice, but it also refers to a dancers' formation of image. In other words, in my research project, the distinction between extensive and intensive also suggests how dancers can approach a construction of an image of danced space through visualization. For example, dancers can create mental images 'outside' their body by projecting spatial structures externally and embedding their own movement within them. Additionally, dancers can also create an image 'inside' by sensing dynamic qualities of their own moving body.

The distinction between extensive and intensive is related not only to how dancers categorize danced space, but also relates to the imagery that dancers form in relation to their embedding of their moving body in space. These are two different attitudes toward dancers' visualization of danced space, not just different types of spatial characteristics.

The discussion of space 'visualized outside' and 'imagined and felt inside' is an important topic because, in my practice, dancers' generation of movement is achieved through the interaction of these two types of images. This chapter focuses on how the conception of extensive space has been historically utilized in the organization of danced space in terms of the embedding of moving bodies within extensive structures that

dancers visualize outside their body. This will contrast with an alternative methodology suggested in Chapter Two.

1.1 Embedding dancers' bodies in three-dimensional structures

It was a feature of the Enlightenment that intellectuals pursued advanced knowledge of objects in the world in terms of their scientific comprehensibility; conventional values and aesthetics were thereby rationally examined. Similar to other intellectual activities of the time, the study of dance itself became a subject of interrogation. In the first half of the eighteenth century, ballet was still merely considered as a decorative addition to opera performance, but a change would ensue whereby ballet emerged an autonomous theatre art with its own type of dramatic narrative (Guest, 1996, p. 1). For instance, Jean-Georges Noverre envisaged a *ballet d'action*, defined as dance movement incorporated with pantomimical gesture, which had originated in theatrical ideas derived from antiquity, and which conveys the emotion and expression of its characters through movement itself, rather than via props, costumes and décor. In his *Letters sur la danse et sure les ballets* (1760), along with emphasising the simplification of costumes, critique of use of masks, stipulations on the appropriate music for dance, and logical plots, he expressed the importance of 'correct' dance techniques- as codified by Pierre Beauchamp (1661) who introduced the five basic 'positions'. This text has often been regarded as the primary manifesto for the emergence of ballet as an autonomous theatre art form. As French dramatist Louis Sebastien Mercier, who depicted life in Paris of late 18th century, states: "Noverre was the first in our time to rationalise the dance" (Guest, 1996, p. 10).

In fact it is perhaps not an exaggeration to say that the dance technique rationalized and codified in the late eighteenth century has provided classic ballet with the ideas behind its unique longevity in the history of western theatre dance. Students of ballet are required to learn its movement lexicon by heart, and the idiomatic ballet class is often structured to

gradually develop physicality, and the understanding of vocabulary and its aesthetics, culminating in the mastery of a complex coordination of body and limbs. What is significant in this codification of movement patterns is that dance movement has evolved, and been forced, to accommodate itself to a particular spatial-geometric environment. The *proscenium stage* had been the standardized theatre environment since the Italian Renaissance; its elevated nature directs the audience's attention to a single 'front' and thus sets its central focus on an ideal spectator, such as honoured guests or a royal host. The grandiose proscenium arch serves not only as a decorative framing but also separates the stage space from the audience space, which lends a picturesque impression to the presentation. The emphasis on the narrative and visual spectacle in the late nineteenth-century Russian 'grand-ballet' style, and in such works as *Don Quixote* and *La Bayadere*, exploits this potential of the stage by featuring depth in the backdrop and elaborate placements of dancers and stage extras. This theatre context necessitated that the ballet academy develop a certain aesthetic in terms of danced vocabularies; it seems that ballet performance of this period was largely motivated by an idea of *exhibiting* the dancers' body, as Tim Scholl (1994, p. 9) summarizes,

[T]he ballet's emphasis of the human body's maximal legibility evolved as the Renaissance perspective stage was developed. As dance performances began to be viewed frontally, framed by a proscenium arch, ballet choreography shifted its focus from patterns described on a ballroom floor, legible from the sides of the performance space, to emphasize the body's vertical and horizontal assertions on the picture-frame stage. The basic positions of ballet--feet and arms rotated outward from the body with limbs extended--make the dancers' movements maximally visible to the audience... Design--both scenic and choreographic--for the perspective stage assumed a vanishing point and an ideal spectator, whose view of the stage would determine the visual design of the production.

It seems that in the early stages of the development of classic ballet there were two conditions which dance movement was required to satisfy. Firstly, as it is presented in front of perspectival backdrops, dance choreography needs to conform to the three-dimensional depth in which the dancers' sculptural embodiment is highlighted. Secondly, as dance events mostly took place as an entertainment for notable guests rather than specialists, dance movement was choreographed to present the human body in motion with as much kinetic clarity as possible. In order to achieve a high legibility of the dancers' movement in this theatre environment and context, it became imperative to construct dance patternings which featured sculptural forms in the body and stabilities in terms of movement material. These two conditions perhaps necessitate structurings via *extensive* spaces, as defined in the introduction, which can play multiple roles in dancers' embodiment: the use of spatial structure can support a dancers' maintenance of sculptural impression, at the same time organize the coordination of body limbs as in the scaffoldings of built architectural form. In other words, as ballet vocabulary became refined, its practitioners developed a dance practice which firstly enables, and then forces dancers to ideationally intermingle their immanent bodily schematics with external spatial structures. This merger of two structures is already clear even in the basic standing position of the ballet academy.

Before moving, one must stand well. Pelvis is centered, neither tipped back nor forward. Abdomen is drawn in, diaphragm raised. Shoulders drop naturally; head is straight, eyes front. Arms are carried downward, rounded from shoulders to finger tips. The desired "turn-out," in which, with heels together, the feet are spread to form an angle of 180 degrees, supporting the erect upper body, is only slowly gained.. (it) offers maximum base and support for any ensuing movement; it is the bedrock of ballet style and practice. (Kirstein, 1971, p. 5).

Describing movement via the spatial properties of extensive space, such as certain directions (upwards, sideways, forwards, diagonally), shapes (straight, curved) and levels (deep, high) is still common practice in the ballet class. These geometric concepts can be adequately formalized in three-dimensional coordinate system for effectively presenting sculptural impressions in movement. For example, the positions of the body, such as the *croisé* and *effacé*, provide diagonal orientations by rotating the entire body from the front while maintaining the profile to an audience situated in ‘front’ (Fig. 1-1, 1-2).

As Agrippina Vaganova points out: “classic ballet is built on *croisé* and *effacé*” (Vaganova, 1948, p.21). These two diagonal orientations enhance the three-dimensionality of bodily structure and thereby bring forth the required ‘sculptural’ impression. While *effacé* and *croisé* enhance the presentation of a dancers’ body on the three-dimensional stage, the five positions of the feet in ballet enhance the stability of movement without reducing the resulting sculptural forms. These positions of the feet facilitate the action of the body in shifting weight towards all the dimensional directions. For example the first position supports verticality, the second position enhances horizontality, and the forth position supports forward and backward movement. It seems that, with the necessity to conform to a particular performance context and spatial environment, classic ballet developed a vocabulary in which the dancers’ body were often embedded in three-dimensional spatial-extensive structures.

1.2 Architectural properties of the dancing body

Three-dimensional structure faithful to the form of this classical vocabulary was especially emphasised in the works of George Balanchine. Via the stripping away of narrative, introduction of scenic backdrops and characteristic costumes, sculptural forms were augmented until they attained an independence from the proscenium stage space. This can be seen as a conceptual shift from a fixed dance space to the space defined by

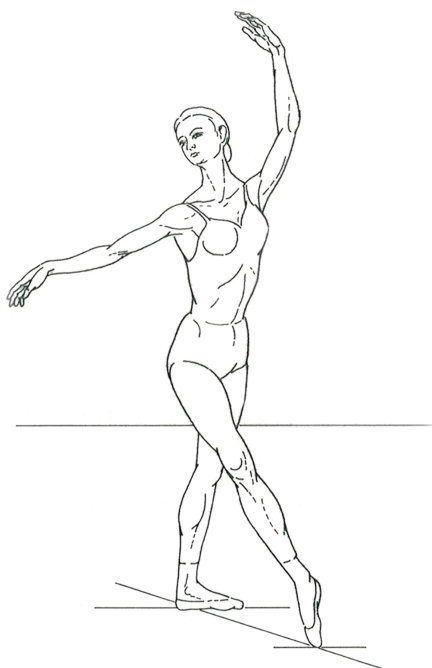


Fig. 1-1: A position of the body in classical ballet: *croisé*

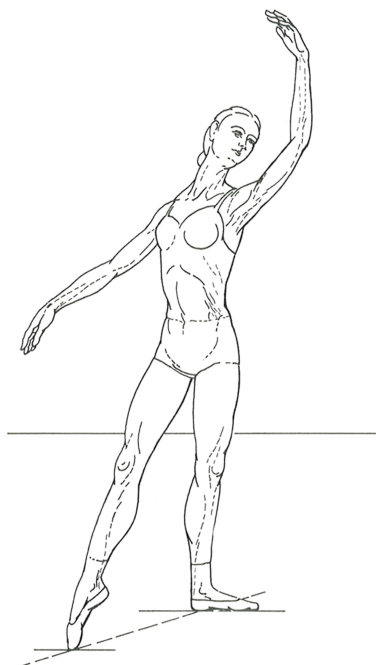


Fig. 1-2: A position of the body in classical ballet: *effacé*

(Kirstein, 1982)

dancers themselves, or a space, as Scholl (1994, p. 103) states: “no longer dependent on the previous century’s illusionistic stage sets, Balanchine focuses on the architectural properties of the dancing bodies, and their ability to manipulate volumes of space around them”. In fact what signifies the singularity of Balanchine’s works is perhaps not only the concentration on the classical forms of ballet, but in his redefinition of the formal qualities of an expressive subject. David Michael Levin (1983, p. 131) states,

Structure and content, then, become identical to the degree that each submits to the process of abstraction. In some Balanchine ballet--extraordinary works such as *Agon* and *Violin Concerto*--a traditionally expressive “content” coincides with the expressive presence of structure. Content *is* structure.

In traditional ballet performance, expressivity in movement had largely depended on a narrative description of characters and the mood of the accompanying music; therefore these theatrical expressions often suggested particular combinations and orderings of ballet steps and gestures. In Balanchine’s choreography, by contrast, it seems that dancers’ presentation of the classic form via the execution of its vocabulary becomes the subject of expression. Putting it differently, Balanchine presents not only a sculptural ‘form’ of ballet, but also its inherent ‘formalism’.

1.3 The centre and the front

These traditions of classical ballet of course continue today, but other dance methodologies appeared in the beginning of twentieth century which were opposed to the aesthetics of formalism. ‘Modern dance’ choreographers, such as Graham and Humphrey, tended to dismiss the ‘academic’ movement lexicon. Criticizing the canonical ‘five positions’ of the feet and established steps of classic ballet as artificial and meaningless, the modern choreographers develop their own vocabulary based on an organic sense of a

body functionality immersed in natural environments, characterized by their embodiments of both gravitational pull and of the breathing patterns inherent in movement. To put it simply, their choreographic determinants were largely motivated by physiological body functions that originated from the personal interpretation of feeling and emotion, and not from the structure of space. As John Martin (1972, p. 20) points out: “the modern dance is not a system; it is a point of view”. Contrasting to the spectacular aspects of classic ballet, Lincoln Kirstein (1976, p. 241) summarizes the form of the modern dance as follows:

In “modern dance,” focus is elsewhere. From its start, it was on and in central somatic areas of the body, rather than extension of peripheries. A prime distinction exists between occidental and oriental dancing: open against closed, centripetal against centrifugal; kinetic against (dominantly) static; fast against slow. This is oversimplification, but a like parallel might be set for ballet against “modern”: aerial versus terrestrial.

Instead of constructing dance sequences from a preset ballet vocabulary, her dancers were rather engaged with their emotional experience and maintained a commitment to their movement via more impulsive than rational means. In considering the use of space, Graham’s choreography is often characterised by a movement toward ‘down and in’; however this is not a structure to which dancer refers when executing a choreography, but rather seems a result of movements initiated from the dancers’ amplification of their own emotional experience, for example, the demonstration of a body contracted inwardly as an expression of suffering. It is important to note that these connections of emotion with movement are largely supported by a holistic idea of both the body and its movement potential. From this standpoint, the “centre” is thus an emotional centre, which is often considered to be located primarily at/toward the solar plexus. Regarding the use of stage

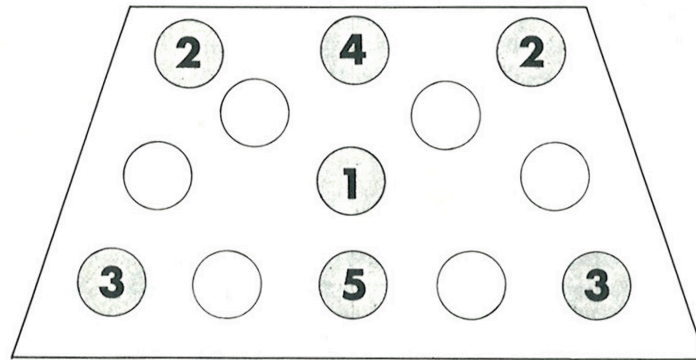


Fig. 1-3: Humphrey's organization of 'spots' on a stage

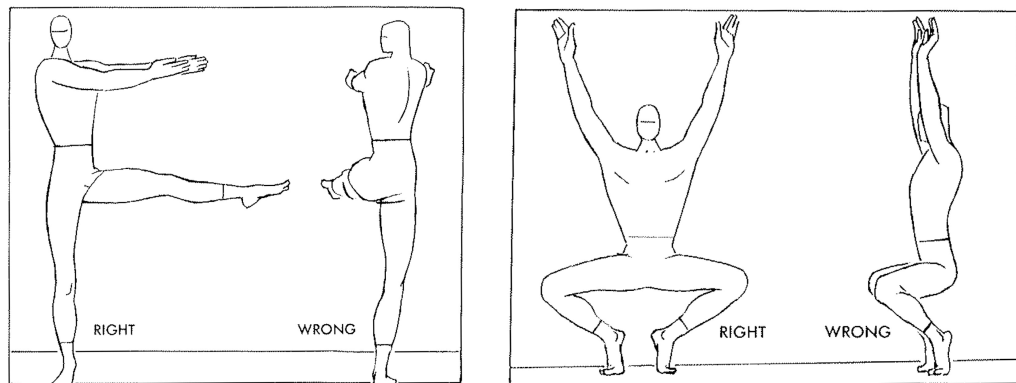


Fig. 1-4: Humphrey's idea of 'single front'

(1959, p. 82)

space, and also departing from the theatrical interests of modern dance choreography, Humphrey developed her psychological interpretation of each 'spot' on the stage for evoking an emotional response from the audience (Fig. 1-3). Doris Humphrey (1959, p. 83) states:

As a simple rule of thumb, there are six weak areas and seven strong ones on a stage. Also add the fact that movement, though personal on the footlights and therefore only suitable for intimate moods, loses power as it retreats upstage--except at dead center. Remember that the main paths which are illuminated, so to speak, are the diagonals and down the center; that the sides are very weak for either entrances or exits, or any movement. In fact, all places except the corners and center back are weak for emergencies or departures.

Humphrey formulated stage space by allocating particular points or positions on the stage that implied various moods and feelings. In fact it seems that not only 'spots' on the stage but also a clear setting of a 'single front' may better characterize her hierarchical organization of the stage space, as when she asserted, "the lines of the body can be all but obliterated by improper choices of direction, and a great deal of effort can be wasted when the movement does not clearly address itself to the one open side of the stage", and "the full impact of the body should be directed to the front whenever possible" (1959, p. 85). (Fig. 1-4)

1.4 No fixed point in space

It is this dogmatic conception of 'centre' and 'front' as well as a subjective and emotional interpretation of a body and space that Merce Cunningham interrogated in his own work. It seems true that although his early works of 1940's show a clear influence from modern dance, which may be explained by the fact that he was one of the leading dancers of the

Martha Graham Company. However, as he developed his own choreographic style, it seems that at least by 1953, when Cunningham formed his first dance company, “he had eliminated virtually every vestige of Graham’s influence from his own dancing and choreography” (Copeland, 2004, p. 12), and that he had therefore ‘modernized’ modern dance itself, as Copeland (2004, p. 2) suggests:

Merce Cunningham has redefined what we think of as “modern dance.” Indeed, he almost single-handedly modernized modern dance by rejecting the basic impulse that animated so much of the long tradition stretching from Isadora Duncan through Martha Graham, the desire to seek inspiration from so-called primitive sources.

Cunningham’s repudiation of the primitivism which characterized most of the other modern dance choreographers, and celebration of formality, seem more similar to Balanchine. However, it also seems that these two choreographers showed different attitudes toward a suitable dance vocabulary and its presentation. While Balanchine preserved a traditional ballet vocabulary and refined the three-dimensional sculptural form for achieving formality in movement, Cunningham often constructed movement phrases from a combination of isolated body parts such as the head, pelvis, back, legs and feet. This process of assembling fragmented limbs, and the introduction of randomness via computer technologies in his later works, generates a movement of formality and complexity free from the personal tastes and habitual choices of the artist. Not only is movement vocabulary largely independent from particular dance styles, but Cunningham also employed chance methods for organizing an entire dance event. Unlike the relationship between movement and music that is largely synthesized in Balanchine’s choreography, Cunningham proposed an independence of movement from sounds and decor and mostly repudiates the idea of making an organic whole in his choreography. With collage-like collaborations with musicians, stage designers, and digital artists, “the

separate elements all exist simultaneously before us, inhabiting what Cunningham calls an “open field.” The order and manner in which we “connect the dots” is left open.” (Copeland, 2004, p. 9) Among these idiosyncratic choreographic structures, maybe it is his idea of ‘no fixed points’ that presents best his conception of space in his choreography. Cunningham (1999, p. 17) states:

In classical ballet as I learned it, and even in my early experience of the modern dance, the space was observed in terms of a proscenium stage, it was frontal. What if, as in my pieces, you decide to make any point on the stage equally interesting? I used to be told that you see the center of the space as the most important: that was the center of interest. But in many modern paintings this was not the case and the sense of space was different. So I decided to open up the space to consider it equal, and any place, occupied or not, just as important as any other. In such a context you don’t have to refer to a precise point in space. And when I happened to read that sentence of Albert Einstein’s: “There are no fixed points in space”, I thought, indeed, if there are no fixed points, then every point is equally interesting and equally changing.

By dismissing the single point perspective, Cunningham empowered the sense of width over depth on the stage. This allows him to direct audiences’ attentions to the movement of each individual dancer, rather than guiding them to a vanishing point. In this way dancers carry their own front, resulting in a literal sense of ‘no fixed points in space’. This idea of decentralization is not limited only in the stage space, but expanded to a larger geography. With the adaptation of digital communication devices, he connected performance space with live music via telephone lines, with pre-recorded images via television and motion capture, and thus his dance space was extended beyond its own bounds.

1.5 Kinesphere and Cartesian planes

Cunningham's abandonment of a 'centre' in space brings to dance composition and idea similar to what Schoenberg brought to music. In the 1920's Arnold Schoenberg developed twelve-tone, or dodecaphonic, music which interrogates the basic structure of Western concert and popular music since the period of Bach. In Western music, a tonal centre, or tonic pitch, presides over the entire music score by placing an ordering of pitch in a hierarchical relationship. Opposing this tradition, twelve-tone music is atonal and all the pitches are equally distributed in the acoustic space. This modernism of Cunningham and Schoenberg may be well described by making a contrast of works of Rudolf Laban. Some argue that Rudolf Laban's idea of 'choreutics', which is his study on movement in space, shares a structural resemblance with the concept of Schoenberg's atonality. (Maletic, 1987, p. 35) This argument seems to be supported by the fact that for the pedagogical use Laban introduced a series of movement exercises, known as 'choreutics scales', based on the twelve spatial directions which locate four corners of Cartesian planes.

For Laban the classic ballet vocabulary represents a static movement which results from a verticality in body and from uses of limbs restricted in the three dimensional 'dominant' spatial directions. On the contrary, the twelve locations in Cartesian planes are physically 'out of reach' and the arms extended to these points take dancers verticality off their centre of weight and "decentralize" the body. The twelve locations create an icosahedron when connecting the vertices, (Fig. 1-5) which also motivates Laban's cosmological and numerological interests and spiritual pedagogy. Based on this spatial structure, Laban (1975, p. 27) develops a number of 'movement scales', which his students embody by tracing the points and lines with their arms.

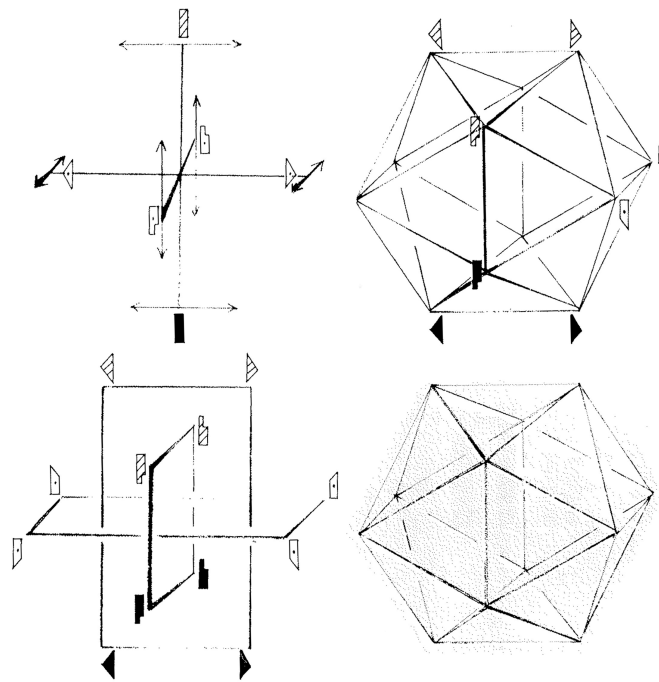


Fig. 1-5: Laban's idea of three intersecting planes. The twelve locations which create an icosahedron when connecting the vertices. (Preston-Dunlop, 1984)

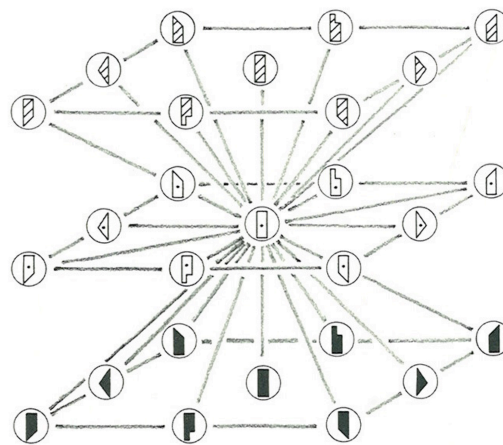


Fig. 1-6: Laban's idea of twenty-seven points in cubic structure (Laban, 1966)

Scales are graduated series of movements which pass through space in a particular order of balancing tensions according to a specified scheme of relations of the spatial inclinations. The student of movement has to become acquainted with the laws of harmony of movement in space.

Translation of the structure of music to space often appears in Laban's dance practice, for example the connection of 'notes' of sound to 'points' of space, 'dominant' notes to three-dimensional directions, decentralization of composition to disequilibrium of the body, and so on. However it is important to note that these are largely as a result of a speculative analogy between the 'harmony' of music and that of movement. As Laban clearly states, 'movement scales' are designed for dancers to 'become acquainted with the laws of harmony', here the term 'scales' seems to be introduced in order to express his personal approach, rather than establishing a discipline with which the music scales provide a precise structural equivalent in the art form of dance. By expanding the structure from lines to planes, he envisaged an active use of the twelve directions, which were largely neglected in classic ballet tradition, and opened up different forms of dance movement by losing the verticality in a body. However, while Laban's system of space-mapping destabilizes movement from a centred structure, dancers now depend on, and are restricted in, an external spatial structure of an icosahedron. By contrast, what Schoenberg inaugurated with the 'democratisation of tones' is a consistent and deliberate attempt to displace pitches. In other words, what he proposed is to nullify the established dichotomy of consonance and dissonance and its conventional 'cause and effect' consequence in composition. As Charles Rosen (1976, p. 33) states:

The movement from dissonance to consonance is governed by procedures that constitute the laws of harmony (which are like grammatical rules, and not laws of nature)...Harmony is not a natural attribute of sound but a way of giving significance

to sound...It (emancipation of the dissonance) was not merely that any combination of notes was to be admitted, but there was to be no longer any necessity to follow a dissonant chord with a consonance.

As seen above, what Schoenberg initiated with dodecaphony is an attempt to abandon the convention of stabilizing the music score via a historically contingent notion of 'harmony'. This seems opposite from Laban's pursuit of 'harmonic law' which leads to, and depend on, predetermined directional recoveries between polarized states of mobility and stability. Seen from this standpoint, Cunningham's idea of 'no fixed point in space' seems closer to the atonal composition initiated by Schoenberg than Laban's choreutic scales from two reasons (Clark, 2011). Firstly, similar to the way that atonal music abandoned a compositional structure prevailed upon by a hierarchy organised around the 'tonic', Cunningham's choreography negates a dominant single sense of centre and front, and an inside/outside dichotomy which hierarchically structures movement in space. Secondly, he instigates a series of asymmetric movement coordinations executed by isolated body limbs, in contrast to the idea of a body as an organic whole, and thus frees movement from the 'cause and effect' functionings of the body, which is closer to the notion of Schoenberg's musical 'emancipation of dissonance'.

1.6 A decentralization and an isometric spatial operation

Although giving up on the classical 'prettification' of the body, such as the light touch hands and a gaze 'projected to afar', Cunningham dancers' embodiment of lines is clearly identical to that of ballet. In fact while Cunningham decentralizes performing space with dancers carrying their own 'front' and sending numerous 'points' to stage space, space within dancers' reach, or the 'kinesphere', is not as much a subject of a spatial construction. "Kinesphere" is an imaginary sphere-shape space which dancers can delineate its periphery with their extremities of the body and is 'the cornerstone of

Laban's system" (Baudoin and Gilpin, 1989, p. 74) This sphere space is often translated into the polyhedral volume of a cube, an octahedron or an icosahedron and it provides dancers with an easier way to visualize three dimensional space intersected with Cartesian planes. These external structures also enable dancers to conceptualize dimensional, diagonal and diametral lines crossed at a central point, which coincides with a centre of a body. These also indicate 27 points in the cube, and 12 points in the icosahedron, which assisted Laban in observing the possible pathways of movement. (Fig. 1-6)

This notion of kinesphere is extended in the work of William Forsythe. Although his works may not be simply summarized due to the variety of his choreographic ideas, it seems possible to point to the fact that spatial forms that are 'manifested' in the dancers' body has remained an issue of central importance in his choreography. Forsythe defigures classic ballet vocabulary completely and interrogates a new aesthetic by exploiting his own creation of Improvisation Technologies. This is a series of spatial manipulations that he and his dancers apply for generating movement material, which is organised by two spatial concepts: a decentralisation and an isometric spatial operation. Firstly, Forsythe differentiates his notion of decentralisation from Laban's model, as Baudoin and Gilpin (1989, p. 74) summarizes:

While acknowledging the promise of Laban's system, William Forsythe explodes it by reassigning its centers infinitely throughout the body. Forsythe assumes a whole array of kinespheres, as it were; each is entirely collapsible and expandable. An infinity of emerging rotating axial divisions may have as their centers the heel of the right foot, the left ear, the right elbow, or an entire limb, for example. In Forsythe's dismantling and suspension of Laban's model, any point or line in the body or in space can become the kinespheric center of a particular movement.

While Cunningham's multiple centres are actualized by dancers carrying multiple 'fronts' around an entire stage space, Forsythe relativizes the idea of centre by dispersing them within a dancer's reach. However conceiving multiple centres as in a personal territory does not generate movement on its own, as these decentralized centres are merely a series of arbitrary markers on a body. Here, Forsythe requires another choreographic determinant, which motivates dancers to initiate improvisation. Forsythe mathematizes the act of improvisation by incorporating an isometric operation through which a form of movement is spatially translated, reflected and rotated according to their relationship with the centres spread throughout the body. In this regard, Forsythe points out the benefit of collaborating with classically trained dancers, as they are familiar with the precise representation of spatial form. Far from so-called 'free improvisation', the mathematical approach of his improvisation technology provides choreographers with highly idiosyncratic dance material, at the same time as maintaining formalism in the movement. Forsythe states:

I've realized that in essence ballet dancers are taught to match lines and forms in space. So I began to imagine lines in space that could be bent, or tossed, or otherwise distorted. By moving from a point to a line to a plane to volume, I was able to visualize a geometric space composed of points that were vastly interconnected. As these points were all contained within the dancer's body, there was really no transition necessary, only a series of "folding" and "unfolding" that produced an infinite number of movements and positions. (Kaiser, 1999, p. 65)

The multiple centres conceptualized in a body and the isometric operations based on them constitute a system for dancers to generate and also manage the complexity of their movements. This also benefits the choreographer in processing a seemingly elusive movement phrase into a form of tangible material, which is exchangeable among dancers

for constructing a larger space on stage, and a larger scale of extensive space.

Cunningham's decentralisation of stage space, and Forsythe's reconsideration of the 'kinesphere'/isometric operations reflect their two very different interests. Cunningham is mainly interested in the way movement resonates with other inputs on stage, such as sounds, costumes, stage set and lighting. Therefore nothing is supposed to be centralized, and the spatial forms in dancers' movements are no exception. On the contrary, Forsythe puts huge emphasis on creating deliberate spatial counterpoints between dancers' movements in composing a total choreographic score. Here decentralized complex movement is exploited, often accompanied by carefully juxtaposed relationship with other media, to convey this particular artist's aesthetic.

1.7 A feeling of space

Unlike other choreographers who elaborated spatial structures for organizing the stage space in performance, it is also important to emphasise that Forsythe's Improvisation Technologies were mainly developed and distributed in digital form (CD-ROM). In contrast with ballet vocabularies, which have developed historically with the aim of presenting a maximum legibility of the body and virtuosity in movement, Forsythe and his dancers produce dance movement from scratch; producing movement from idiosyncrasy, and which is more similar to a kind of disjointed alphabet than a fixed movement vocabulary. Most of the resulting movement is free from any other idiomatic dance styles, as Gabriele Brandstetter (1998, p. 46) states,

The dancers, trained in the system of classical ballet, learn to work with it in such a way that they rewrite, decompose, and build in, deviate from, or enlarge interruptions of the interlacings in the code, each in his or her own improvisatory experiment. An exchange of speaking (of the common code) and spelling (of one's "own" defigured alphabet) takes place: "The dancers learn to spell back their own

language” [...] the dancers develop a lexicon of multiply branched transcriptions of single ballet figures and their combination possibilities. This results in the nearly exponential growth of movement lexemes, whose collection, selection, and recombination --with all the choreographic possibilities, (de)figuring with catachrestic and metaleptic operations--can now be stored in a specially developed CD-ROM program, from which dancers and choreographers can draw.

When movement is generated through the isometric procedure, it may be natural that a transformation of spatial form, which dancers visualize in mind, carries a larger freedom than the bodily capacity of joint rotations and muscular connectivity, and complex orientations of limbs result in a contortion of body. This invites dancers to lose their verticality; gravity then takes over, and consequently they fall in a state of disequilibrium. However, even in the moment of falling, the movement Forsythe’s dancers produce seem to retain a clear idea of figure, or what Brandstetter has termed a, ‘defigure’. In fact in the *Improvisation Technologies*, two conditions which seem incompatible may be satisfied: on the one hand, heterogeneity in dance improvisation often depends on a dancers’ personal interpretation of a choreographic idea, as seen in the ‘free improvisation’ of modern dance. On the other hand, as we have seen in Balanchine’s choreography, an expression of formalism often requires a representation of a pre-set or preconceived form which seems to be the opposite of the act of improvisation. How do Forsythe’s dancers still maintain formal expression in their improvised movement of defiguration and disequilibrium? In the technologies, a formal expression of movement does not depend on the representation of spatial design itself, but rather is implied through a dancers’ internalization of a spatial form. It is seemingly a specific mimetic relationship, a methodology of ‘making oneself similar to’, which dancers create in connection with an extensive space that brings formality in the movement. Forsythe’s statement that “in essence ballet dancers are taught to match lines and forms in space”, might suggest that

being “taught” means exclusively in terms of extensive space. This means that dance training must constantly enter into a mimetic relationship with extensive space, and this embeds a certain formalism in the way dancers move. We thus posit a hypothetical argument: before dancers represent spatial constructs, it seems that the conceptualization of the extensive space itself has already affected mentally the way dancers move; therefore, in mimetically connecting to this extensive space, dancers can present a formalism in movement without representing the spatial form itself. Based on the dancers’ mimetic relationships, the isometric procedure in the act of improvisation only requires information of extensive space of lines, planes and etc, in order to generate movement.

As dancers maximize such mimetic relationships and the subsequent movement of defiguration, it seems that the representation of form itself becomes the subject of interrogation. In one of his Improvisation Technologies, Forsythe even lets dancers intentionally not represent extensive forms but simply ‘play’ with them, as recorded in Improvisation Technologies,

You can establish a line with a gesture... I can establish a line on the floor with little hops. I can establish it by rubbing it into the floor... I can establish a line by making little tiny dots... I could probably smear it, slide it, tap it, swat it, kick it. A line or a point is there in space and how you establish it or how you manifest it is really up to you. It is very important that this part of the process remain extremely playful and extremely imaginative. Don’t restrict yourself to strict drawing of lines like you’re drawing with a knife or a pen for that matter. You have to use the surface of your body and your imagination about how lines could form and how you could manifest these things with your body. (Forsythe, 2003, 13 s to 1 min 25 s)

The line conceived in a dancer's mind is not literally represented as a geometrical shape; however, the ideation projection of the line can involve the variety of different actions, such as, 'hopping', 'smearing', and 'kicking' etc. Here Forsythe's technologies extract a dancers' ability to refer to extensive forms out from the actual act of representing geometric shapes. This means that in the improvisation technologies, the geometric shapes are not instantiated in any way physically, but only serve as guidance and as an incentive for dancers to proliferate their movement phrases. In this method of using geometry in improvisation, conceiving extensive space motivates dancers to make an 'action as such' other than a representation of ideas or objects.

Now that we have observed how dancers systematically produce a movement of dissolution by exploiting the Improvisation Technologies, it may be possible to discuss what this mimetic relationship with extensive space signifies in terms of dance-space in general. In a nutshell, it might be possible to say that, in contrast to Cunningham, who extends dance space outwardly with the idea of 'no fixed point in space', Forsythe expands dance space towards the 'inside' of dancers' own perceptual space, namely into their own *proprioception*. This concept of proprioception describes the internal sense that organizes the positioning of various body parts. In the Improvisation Technologies, dancers think of the location of their movement after the isometric operation as effectuated itself, and is an attempt to solve the equation via a replacement of limbs, and which often exceeds the capacity of their joints' possible biomechanical rotations. In the act of this 'problem solving', it is rather usual for them not to know what they look like 'from outside', or where they are situated in general space; thus dancers are required to rely on their own proprioceptive sensations or unconscious body schematics. Peter Boenisch (2007, p. 27) explains:

Forsythe thus began to develop his own alternative to mimetic representation *with* the body, suggesting instead an analytical reconfiguration of the world *in* the body. His ‘Improvisation Technologies’, which were eventually compiled on CD-Rom, essentially train the performers to analyse any input in terms of lines, points, areas, surfaces, or plane in order to create movement from this analysis. They no longer execute a choreographed movement nor imagine an event or image to be reproduced, but they dance a proprioceptive experience.

In using a mimetic relationship with extensive space as a vehicle, and by entering into their own proprioceptive space, dancers can create an ‘action as such’. This may seem to complicate choreographic strategies, but with dancers’ improved embodiment through long-term training, it gradually becomes achievable over time. In an interview with Boenisch, Forsythe explains:

You have learned how your body senses the real world, and with all those things elaborated in the CD-Rom, you do a kind of inverse kinematic-- you actually produce the sensation of, or try to imitate in an inverse manner the mechanics of perceiving the world. If I take my fingers, I can extrude this and say, there is a line here, and now I have the feeling that there *is* a line between my two fingers: you *feel* you see something that doesn’t exist-- all those things are proprioceptive hallucinations, physical mirages. (Boenisch, 2007, p. 24)

A line may not exist as a visible object in the real world, however, by engaging with the object mimetically, dancers’ proprioception creates a certain kind of ‘feeling’, which motivates their acts of improvisation. It is possible to say that extending danced space into the internal sense of dancers’ proprioception may signify a leap regarding the history of western dance theatre practice. As discussed earlier, most of the choreographers who

worked on spatial structures as choreographic determinants dealt with the representation of extensive space as a tool to organize stage space, rarely tapping into the creative potential of feelings and sensations which the act of the representation of the forms brings to a dancers' mind and body. We may say that the use of geometric structures observed in Forsythe's choreography, such the use of extensive space and isometric operations on it, only suggest multiple possibilities of actualization of movement.

Within the choreography of western dance theatre, what is meant by the term 'space' has changed since its inception of the proscenium stage. In Chapter One, we saw that danced space has been often organized by spatial structures characterized by extensive properties, such as lines, planes, and volumes, which represent the space as a divisible and measurable. Here, it may be important to note that this application of the representation of extensive space is not limited to choreographers representing the classical ballet tradition, for example, we saw Laban's use of the icosahedron structure in his dance pedagogical practice. Through the application of the Improvisation Technologies, Forsythe's dancers similarly enter into mimetic relationships. However, Forsythe has developed mathematical operations in which dance movement is actualised through a feeling, sensation and thought of space, rather than representation of pre-existing forms. Here, the dancers' body is not embedded in a spatial structure, but their proprioceptive experience creates a space of potentiality where the extensity in movement becomes dissolved. This leads to a question to be discussed in Chapter Two. In this movement of dissolution, how practical is it to apply the notion of extensive space as a choreographic determinant? If dancers aim to create 'movement as such' by maximizing their kinesthetic sense, it may be possible to initiate their movement with a relation to *intensive* space, which has spatial properties in a state of progressive deformation. There may be a possibility that an alternative category of space can be ideationally utilized as a choreographic determinant.

It is important to note that one cannot clearly conceive a ‘mental picture’ of intensive space in the same way that we do when visualizing ‘static’ lines and planes, as intensive space constantly changes its form when it is visually represented. Intensive spatial form is in a state of constant deformation, therefore it is not as easy to visualize. So what is the benefit of utilizing such complex spatial forms in dance practice? I have observed that the dynamic nature of intensive structure permits dancers to have an interactive relationship with the mental images they visualize. In other words, with training, dancers can influence the ongoing visualization of a transforming spatial form, with active relation to their current sensory experiences. What I am interested in in my practice is to observe what kind of changes in movement quality can be created when dancers interact with different types of mental images through their improvisation.

In Forsythe’s *Improvisation Technologies*, dancers visualize not only lines and planes but also processes of isometric operation that translate these forms, but leave their overall shape intact. In contrast, my practice involves evoking different types of images that are both visual and non-visual, and making an interaction between them. The application of continuous intensive form enables dancers to conceive visual images that are *related to* dynamic kinesthetic imagery, instead of being limited to the visualization of a static idea of space.

This application of intensive spatial structure brings two characteristics, which are interrelated, into my dance practice. One is that dancers experience the perceptual processes of the generation of imagery through visualizing and moving. The other is that the way this particular interaction between mind and body and the reciprocal relationship between visualized images and sensation of movement gives rise to a distinct use of space.

This is an alternative approach to the mental representation of space in dance. In the next chapter, I will introduce how dancers actually make this interactive connection between imagined mental images and movement-generated kinesthetic images.

Chapter 2

Two Types of Kinesthetic Imagery: Extensive and Intensive

The previous chapter provided a history of western dance practices and how spatial and geometric structures have been utilized within the artform of choreography. From the development of a classical ballet vocabulary in which the dancers' body is embedded in various three-dimensional structures, through to the conceptualization of the spaces within the dancer's body, we have observed a number of paradigm shifts in geometric thinking with relation to the idea of danced space. However, we can also observe that most of the spatial categories of these histories of danced space have involved *extensive* geometries. In other words, danced space has been often conceptualized with, and organized by, the spatial structures, such as lines, planes and volumes, which represent space as a measurable and divisible object. It seems that these extensive geometries have been historically dominant within choreography and have only been recently challenged by more intensive paradigms for movement creation.

As an extension and a continuation of these shifts in the way geometric paradigms and geometric imagery have been used in the history of contemporary choreography, my research practice concerns how the concepts and structures of intensive space, such as stretching, folding, bending, and connectivity of space, can be utilized for the purpose of creating dance. This reconceptualization of space, however, must be done carefully, since the conception of spatial forms involves a particular type of perception and experience within the dancer's body, as we saw when considering Forsythe's Improvisation Technologies. This suggests that the discussion of applying more intensive structures in dance involves a detailed discussion of the dancers' ability to experience their own movement. For this reason, this chapter starts by building upon the previous discussion of the Improvisation Technologies given in the previous chapter, and further explicating the ideas pertinent to this method, which are related to the notion of imagery and also the notion of kinesthesia. I will look in more detail at these two ideas, both of which are central to my dance practice, by using concepts from contemporary cognitive science and

related ideas within the analytic philosophy of perception and phenomenology. These ideas will be introduced in the following order.

Firstly, the role of kinesthesia in perception will be defined by looking in detail at the investigations of Edmund Husserl regarding the constitution of objectal perception. This discussion will be related to how we experience our own real and virtual movement in constituting objects three-dimensionally. Husserl's account of kinesthesia will then be extended through an investigation of Maxine Sheets-Johnstone's work on the topic, which focuses on kinesthesia as the perception of self-movement. Sheets-Johnstone points out that Husserl's notion of kinesthesia may be insufficient to the discussion of dance, because the spatial object that is kinesthetically perceived is our own body, through a 'felt' dynamic. This leads to a discussion of how this internally felt movement may be visualized, anticipated, or imagined, whereby we form what we define as kinesthetic images. Finally, a spatial category of this type of mental imagery will be introduced, with further reference to Forsythe's method of improvisation.

Based on the discussion of these topics related to kinesthesia, movement and imagery, the rest of this chapter will introduce the theoretical aspects of my own dance practice. In short, my own method of improvisation is not based on visualizing external, extensive structures, but on structures *derived from the dancers' own movement*. Chapter Three will then illustrate the pedagogical process of my studio investigations, coupled with documentation of subsequent rehearsals and performances.

2.1 Husserl and Kinesthesia

For explicating both real and imagined movement, it is necessary to begin with the seminal investigations of Edmund Husserl into perception. In *Ding und Raum/Thing and Space* (1907) Husserl discusses how we form objects spatially in our consciousness, and

points out two preliminary ideas which account for how this works. Firstly, it is a fact that we can visually perceive only one ‘profile’ of an object at any one time. This is because a physical object cannot appear to us without having occluded sides. For this reason, to complete an appearance of an object in the mind, the perceiver must consider not just the temporary isolated profiles of the object but also a type of temporally extended perceptual series, which provides more complete knowledge of this same object (Husserl, 1997a, §19). These temporally extended series are essential for us to perceive an object, and the separate profiles must be synthesized in our perception, in order for us to recognize the object fully. Secondly, Husserl claims that it is a necessary fact that this synthesis of separate profiles must occur *continuously* for us to be able to execute this process as a consistent experience. Although we also observe discontinuities in the presentative contents of perceptual series, this does not mean that this synthesis of profiles is disrupted in perceiving an object: instead, the discontinuities take place against a backdrop of continuity (§44). It is important to note that Husserl defines these temporally extended perceptual series as also including the *imaginative projection* of possible series in relation to the object (§30). In other words, in perceiving an object, the synthesis of separate profiles extends to how this object *would* appear given other possible profiles created by the perceiver relocating his or her body in space.

However, the synthesis of the temporal series of real or possible appearances is still not sufficient for explaining how we constitute objects spatiality: we must also take into account the role played by *kinesthesia*. Kinesthesia is important because visual information by itself cannot explain our experience of three dimensionality. If we were not aware of the direction of our own movement in relation to the object, it would not be possible to see the difference between the object’s movement independent of us, or the appearance of an object at rest. This felt awareness of our own movement is what Husserl means by the term kinesthesia. He claims that certain kinds of motion, such as receding

from and approaching the object, are important for us to constitute objects spatiality, and what is important is the correlations of these movements, or ‘kinesthetic series’, with the series of visual appearance that coincide with them. At this point Husserl emphasizes the importance of the kinesthetic self-awareness of movement to the possible, or ‘virtual’, series of perceptions that aim for the imaginative capture of the absent profiles of an object. This correlation of virtual visual appearances with virtual kinesthetic sensations is operated as ‘if-then’ loops: ‘*if* one would see this, *then* one would feel this movement within the body’. Husserl (1997b, p. 390) continues: “All possible profiles of an object, as a spatial object, form a system that is coordinated to one kinaesthetic system, and to this kinaesthetic system as a whole, in such a way that “if” some kinaesthesia or other runs its course, certain profiles corresponding to it must necessarily also run their course”. To summarize, perception operates within a system where a series of background kinesthetic experiences is functionally correlated with a set of visual, or other (such as tactile) appearances. To constitute a sense of space and objects in space, this correlation of visual and kinesthetic series of experience is strictly necessary. Dan Zahavi further explains Husserl’s definition of kinesthesia as related to visual and other perception, “Perceptual intentionality presupposes a moving and therefore incarnated subject... the crucial point made by Husserl is not that we can perceive movement, but that *our very perception presupposes movement*” (2013, p. 100 [emphasis in original]). Husserl’s investigations into perception show how a sense of kinesthesia is vital to all experience and validates the existence of a basic kinesthetic aspect in the act of our experiencing and the constituting the world.

2.2 Kinesthesia as a Sensory Modality

In the last subsection, we see how Husserl explains the manner in which we form objects spatially in our consciousness. Now, from a dance perspective, we are led to consider the possibility of what would happen to our kinesthetic sense and sense of spatiality when we

direct our attention to our own moving body. As we saw in the last section, Husserl simply regards kinesthesia as a type of awareness of movement and positioning relative to objects that are outside our body, and not as a sensory modality in its own right. Maxine Sheets-Johnstone (2011, p. 120) argues that Husserl's account of kinesthesia is therefore insufficient when considering the dynamic and continuous nature of the experience of self-movement. In her investigation Sheets-Johnstone also makes a modification to Husserl's conception of kinesthesia by introducing her own systematic account of kinesthetic consciousness (p. 121). Sheets-Johnstone claims that there is a complex dimensionality involved when we kinesthetically experience the dynamics of our own movement, which consists of four basic qualities: tensional, linear, amplitudinal, and projectional. These qualities can be separated only when the movement is reflectively analyzed; usually they are all combined. The combination of these kinesthetic qualities creates the distinct qualitative felt dynamic phenomenon of self-movement (p. 123). The characteristics of these basic qualities are explained thus:

[...] the felt tensional quality has to do with our sense of effort; the linear quality with both the felt contour of our moving body, and the linear paths we sense ourselves describing in the process of moving; the amplitudinal quality with both the felt expansiveness or contractiveness of our moving body and the spatial expansiveness or constrictedness of our movement; the felt projectional quality with the way we release force or energy. (Sheets-Johnstone, 2011, p. 123)

It would seem that Sheets-Johnstone's alternative conception of kinesthesia can provide a more phenomenologically accurate account of dance than Husserl's, whose definition reduces the complexity of the qualitative aspects of experiencing movement to just one of its aspects, a sense of linear movement in a particular direction, such as receding from and approaching an object. As adults, these complex qualitative dynamics can be easily

neglected because we normally use movement for the purpose of managing paths around external objects and through our environment, and rarely for generating movement for its own sake. However, by becoming intentionally conscious of our kinesthetic experience, we can experience these dynamic qualities at “any time we care to pay attention to them” (Sheets-Johnstone, 2009, p. 6). This is an important difference between kinesthesia and other sensory modalities, such as vision. Kinesthesia requires a type of conscious reflective intention for it to be experienced, and in terms of dance, this conscious attention to these felt dynamic qualities becomes a central issue:

The qualitative dynamics of movement are obviously central and foundational to the aesthetic creation and realization of a dance. As a formed and performed art, dance is grounded in the qualitative intricacies, complexities, and possibilities of human movement. Kinesthesia is in turn a sensory modality basic to the art of choreography and the art of dancing. An important fact attaches to this truth. Kinesthetic experience is not a matter of sensations, but a matter precisely of dynamics. (Sheets-Johnstone, 2011, p. 11)

There is another important aspect of kinesthesia that needs to be discussed in relation to dance. Husserl points out that kinesthesia has both ‘inner’ and ‘outer’ components (Sheets-Johnstone, 2008, p. 194), which provides us with the ability to both feel *and* perceive our own movement, which suggests two very different attitudes towards the moving body. Through kinesthesia we can perceive our own bodies firstly as if they were ordinary objects moving through space, and we can also kinesthetically experience our movement as internally ‘felt’, in terms of its personal interiority. It is important to note that this enables us to form mental images that relate to the various components of kinesthetic experience. For example, we can form an image of a virtual line which

follows the direction of a movement, by visualizing the volume that the trajectories of that movement creates.

What is important to notice here is that we can *imagine* these ways of experiencing our own movement to form this type of image. For example, by imagining how our movement would look if we moved in a certain way, and also how it would feel to move in that way, an imaginative projection of such experience actually enables our sensorimotor knowledge to experience kinesthesia, and we can form a mental image of our kinesthetic sense. And now the question is: what kind of an image is felt and visualized? The nature of this image will be discussed in the next section.

2.3 Kinesthetic Images

The discussion in the previous section has explicated the ‘inner’ and ‘outer’ components in our kinesthetic experience, and how our ability to both feel and perceive movements involves the visualization of an image. It is important to note that the movements felt and perceived here involve not only movements physically carried out by the body, but also imaginative projections of what it *would* feel like to move in this way. This raises a question; how do we imagine or anticipate our own movement via certain visualizations or mental images of the body? In answering this question, it is useful to discuss some ideas from contemporary cognitive psychology, neuroscience, and phenomenology.

What is central throughout this discussion is that the term ‘image’ does not just refer to the visual sensory modality. In other words, mental images are not related to ‘pictures in one’s head’, meaning that there can be images or imaginings that are formed via other sensory modalities, such as hearing and smell. What is observed in these types of images is that they have a dynamic nature, as Antonio Damasio (1999, p. 318) states:

By the term images I mean mental patterns with a structure build with the tokens of each of the sensory modalities – visual, auditory, olfactory, gustatory, and somatosensory. The somatosensory modality [...] includes varied forms of sense: touch, muscular, temperature, pain, visceral, and vestibular. The word image does not refer to “visual” image alone, and there is nothing static about images either.

Now that there is a possibility of an image formed via a variety of sensory modalities, what would be the imaging process of an image that is formed via kinesthetic perception? Since we need conscious attention in order to kinesthetically experience dynamic qualities, the type of imaging process would be different from that of visual perception, which is a sensory modality that does not normally require such attention- it is naturally more transparent. In answering this question, it is useful to look at Evan Thompson’s account on imagery experience (2007, p. 269-291). He questions the familiar idea involving ‘images’ of all kinds, whereby they are seen as some kind of mental picture constantly intermediated and analyzed by the mind. Thompson claims that imagination is instead an activity in which we “visualize an object or scene by mentally enacting or entertaining a possible perceptual experience of that object or scene” (p. 269). This suggests that when we imagine something we have the ability to simulate the experience of that something in perception, whether it has actually happened or not. Thompson continues, “In visual imaging, one apprehends an object not by means of a phenomenal mental picture but by re-presenting that object as given to a possible perceptual experience” (p. 291).

Although Thompson discusses the imaging of the visual modality here, it is important to emphasize that this simulation theory does not exclude the possibility of applying a similar account to imagining something in another sensory modality. Based on these ideas, we can now define the concept of ‘kinesthetic image’ by explicating two ways to

experience it. One is that we can form images that relate to the qualitative nature of our own actual movement when we move. The other is that, as the simulation theory shows, we can also form kinesthetic images that relate to how we might imagine our body to feel or look *if it were* to move in such a way. These images are formed by the qualitative nature of our possible, or virtual movement. As we saw in Husserl's discussion, this involves a type of knowledge that implies a correlation between our potential movements and resulting possible changes in other sensory modalities.

In short, kinesthetic images are images that we visualize via both our actual kinesthetic experience, and the vicarious simulation of virtual movements, in terms of how we imagine a movement would look and feel like. What makes kinesthetic images different to other types of mental images is that what we are experiencing is not the possible perception of an external object, but the perception of our own body itself as an object. From a dance perspective, this becomes an important subject because the anticipation of movement that involves imagery often structures how dancers actually move in a particular choreographic praxis.

2.4 Geometric Paradigms for Kinesthetic Imagery

The prior section looked at how we can visualize, project, and can potentially combine kinesthetic sensory modalities and kinesthetic images. A subsequent question arises, one which calls upon the Forsythe's Improvisation Technologies discussed in Chapter One. The question is thus: What is it that distinguishes the imagery experience from that which involves visualization of extensive spatial structures? In short, the imagery used in the latter involves an ideational projection of a certain type of geometric structure within the process of the virtual simulation and the projection of movement. The first part of this section will look further at how these geometric ideas can be intertwined with kinesthetic images. Also, it examines how these structures utilized in Improvisation Technologies are

represented forms of an *extensive* space. The second section investigates how alternative structures of *intensive* space can be combined with kinesthetic imagery.

As we saw in Chapter One, in the history of western dance theatre practice, danced space has been often organized and conceptualized by applying spatial structures with extensive properties, such as lines and planes, and representing space as a divisible and a measurable object. The Improvisation Technologies of William Forsythe have been observed to exemplify how this representative strategy of extensivity is applied in contemporary dance choreography, and how Forsythe's dancers generate movement via a two-stage operation. Firstly, dancers are trained to mimetically interact with extensive types of geometric forms by relocating and transforming them onto their own bodies imaginatively. The ability to enter into mimetic relationship with a projected geometric form becomes a foundation for the second stage. Forsythe often further conditions the types of transitions available by stipulating that they should be 'isometries', which are defined as mappings of extensive space, and preserve distances, such as lateral translations, rotations, and reflections. It is important to note that for the purposes of navigating dancers through this process of generating movement, Forsythe employs verbal propositions which involve the imaginative projection of a geometric object, such as a line, square, or cube. In this methodology, the dancers' imagination involves mapping the body onto/into this external structure in support of their own creative generation of movement. David Kirsh (2009, p. 444) explains this use of external structure, "When someone externalizes a structure, they are communicating with themselves, as well as making it possible for others to share with them a common focus. An externalized structure can be shared as an object of thought".

Kirsh argues that the benefit of using an external structure is to communicate and share a common focus in the creative process. In fact, in the Improvisation Technologies, the

dancers and the choreographer can both identify and exchange the form of movement they work with in their improvisation, which makes their sessions productive and efficient. This is because they have experienced a training scheme in which they apply the same ‘object of thought’ in the process of generating movement.

This suggests a question; what if dancers are trained to conceive an alternative type of spatial form in order to initiate the process of generating movement? Instead of the historical preference of extensive forms and embedding the body into external structures, perhaps dancers may be able to conceive of a continuous *intensive* image of their own movement as an alternative form with which to interact. Through a series of training sessions, dancers can visualize and form this intensive image, which involves a vicarious simulation of a different type of kinesthetic image, and does not involve the projection of an external structure onto/into the body. As a result, we are applying the same process of the simulation and projection of movement as in the Improvisation Technologies, but this time kinesthetic images are instead derived from the ‘morphodynamic volume’ created by the possible movements of the body itself. When dancers somatically internalize the process of *auto-mimesis* through training, new movement could be structured by the deformation, twisting or stretching of the kinesthetic image that the dancers produce from *their own ongoing movement*. These deformations of image can be then re-internalized within the body itself, which in turn produces a new kinesthetic image, resulting in a process that creates an internal ‘feedback loop’.

These ideas of intensive space, the process of deformation, and the system of a feedback loop can be best described by using ideas from the field of topology. Unlike extensive space, which represents space as a divisible and measurable object, intensive space represents non-metric space where the notion of ‘length’ is replaced by the property of ‘being nearby’ which is not bound to the rigidity of metric concepts. Within this type of

topological space, it is possible that many of the unique shapes found in extensive geometry, such as triangle, square, and circle can become the same figure through a deformation process. This type of deformation is called '*homeomorphism*', a mapping that does not preserve distances and in which nearby points in space can become fused, through stretching and twisting, for example. Manuel DeLanda (2002, p. 25) explains this connectivity of space as observed in topologic space,

(Topology) may be roughly said to concern the properties of geometric figures which remain invariant under bending, stretching, or deforming transformations, that is, transformations which do not create new points or fuse existing ones. (More exactly, topology involves transformations, called "homeomorphisms", which *convert nearby points into nearby points* and which can be reversed or be continuously undone).

Now, as we look at these ideas from topology, it seems that the idea of homeomorphism and its constant deformation can become alternative structures to the idea of extensive shapes and their transformation via isometric operations, which we observed in the Improvisation Technologies. But for what purposes can a probably unfamiliar abstract spatial form find application within a dance context? This will be explained with more detail in the following section, but, simply put here: There are two purposes. Primarily, since an image of *MDV* is in constant deformation because of its fluid nature, dancers can experience kinesthetic qualities that are different from what is felt when they simulate the movement of interacting with extensive structures, such as lines and planes. The qualitatively felt dynamic difference, as a result, actualizes different types of movements in their improvisation. Secondly, an image of *MDV* can involve the mapping of kinesthetic images and of the body itself, creating a feedback loop. Applying this looping system in the generation of movement can enable dancers to improvise movement

without embedding their body into external structures. The potential introduction of this type of topological space into choreographic praxis will now be discussed.

2.5 Movement Propositions for Kinesthetic Imagery

The previous sections introduced two different spatial categories, namely extensive and intensive, by looking at the example of Forsythe's Improvisation Technologies. While the external structures Forsythe uses in communicating his ideas of movement are simple structures such as lines and planes, my research proposes instead the use of ideas relating to topology and kinesthetic image, which are derived from the dancers' own movement. However, merely explaining the two types of kinesthetic imagery is not sufficient for the further discussion of the practical application of these ideas. What needs to be discussed now is the way in which choreographers give dancers instructions to *evoke* kinesthetic images, because forming different types of kinesthetic image may require a different type of propositional methodology.

In the Improvisation Technologies, the dancers move as if there were representing spatial forms in space, and mimetically interacting with them according to a 'movement proposition'. Let us take one of the movement propositions Forsythe used to generate movement material for the piece *Eidos: Telos* (1995) as an additional example of what his dancers experience in the creative process: 'Create a line between elbow and hand. Extend that line by leaving your forearm where it is in space and manoeuvring your body to create a straight line between shoulder and hand'. Dancers have two different ways to carry out this movement proposition. One is that dancers can respond physically by moving their own body. Although there may be no correct answer for the proposition, they can go through some kind of a problem-solving process, such as creating an 'actual' line between the forearm and hand by miming the shape, then superimposing the line onto a 'virtual' image of the same line, and then extending it through the arm. This means

that, while the forearm-hand segment remains fixed in space, the rest of the body acts to align the shoulder into the extension of the line into space, which results in the shoulder dropping to ‘solve’ the movement proposition. What is important to note here is that dancers rearrange their body to meet the demands of the movement proposition, instead of stretching an interpretation of the proposition and accommodating it into their habitual movement. A second possibility of carrying out the movement proposition is that dancers can solve it imaginatively. As discussed in Thompson’s simulation theory, the experience of executing a movement through imagination involves a vicarious simulation of the actual movement in perception, which is different from the projection of a static series of ‘pictures’ of the movement in one’s mind. In both ways, in the Improvisation Technologies, this imaginative projection involves prescribed spatial forms, which can be described in terms of extensive geometries, and also movement propositions, which involve a process of isometric transformation. Following Forsythe, these are what might be called ‘choreographic objects’, which are physical and ideational objects that are used for generating choreographic movement in the bodies of those who enact with them.

It is important to mention that Forsythe uses the spatial structures of extensive space in his method for maximizing productivity in the creative process. He explains: “Since I work primarily with ballet dancers, I analyze what they know about space and their bodies from their ballet training. I’ve realized that in essence ballet dancers are taught to match lines and forms in space” (Kaiser, 1999, p. 65). This means that Forsythe uses the external structure of extensive geometries to create a system of generating movement material to suit his artistic interests. This may raise a question: if we apply a structure of continuous intensive space as an alternative method to extensive geometries, what kind of movement proposition would be used to generate movement? And who would benefit if there was such a dance method? This leads to what I propose in my research as a theoretical and practical extension of what the Improvisation Technologies offers dancers.

It is also important to mention that the word ‘extension’ here does not mean that applying this method results in producing dances with a superior aesthetic value. Instead, it means that my dance practice applies another kind of ‘movement proposition’ that involves a different type of kinesthetic image characterized by the continuity and connectivity of form. In addition, this method can be used with all kinds of dancers, regardless of their prior training.

An example of a different type of movement proposition constructed with the application of continuous intensive form is, ‘Stand upright, keeping the feet still at all times. Extend both arms outwards and rotate both in circles around the head. At the same time, twist the torso as to facilitate maximum extension of the arms. Now concentrate on the total volume created by the body in executing the movement of the arms and torso’.

Importantly, the image of the ‘volume’ being created via dancers’ imaginative projection of movement trajectories is continuously forming and deforming and is not a static idea of volume, unlike the idea created by imagining a cube or sphere. Since this volume is constantly changing its form, it is much more difficult to visualize than lines and planes. To ameliorate this problem, we use computer technologies to support the dancers’ imagination.

Figure 2-1 shows an image of the “histograms” of movement recorded using motion capture technologies. In this image movements of the body are superimposed on each other, and the total trajectories traversed create a *MDV*, which is a volume in a constant state of flux.

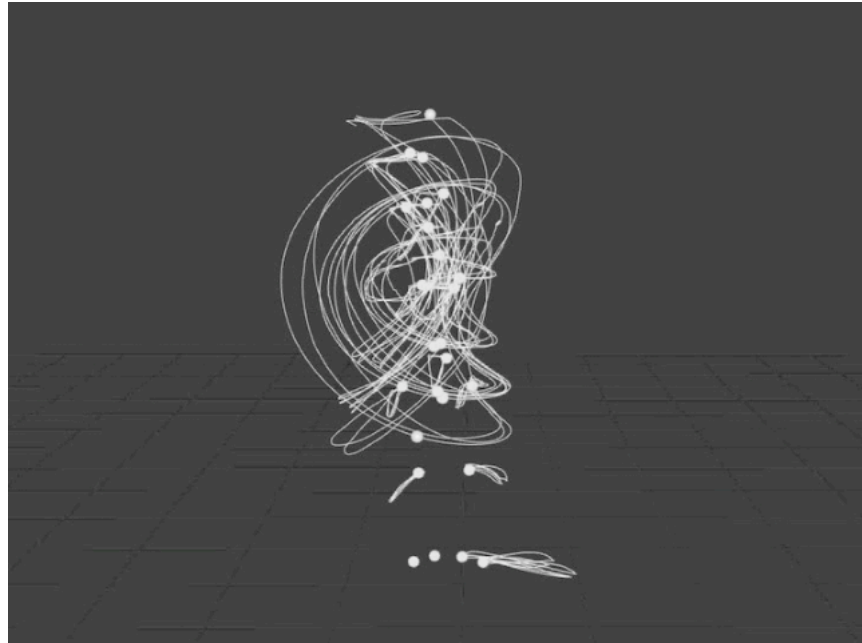


Fig. 2-1: The image of movement ‘histogram’ captured with motion capture technology. The history of motion trajectories represents an image of *MDV* that dancers can visualize from the movement of Fig. 2-2.



Fig. 2-2: Still image of a movement consisting of rotating the arms and twisting the upper torso.

Figure 2-2 shows a still image of the previous example of the movement of rotating arms and twisting the torso, that was described above. What I believe to be different from the movement proposition applied in the Improvisation Technologies is that, in my own practice, kinesthetic images depend entirely on the movement *itself*, without embedding it in any external structure.

2.6 Improvisation with the Visualization of Intensive Kinesthetic Images

Visualizing *MDV* is a starting point for my choreographic praxis. Dancers create movement material via a two-stage operation based on the ability to visualize this type of kinesthetic image, which creates an internal feedback loop for use in improvisation. In the initial stage, dancers learn a technique in which the image of a movement is internally simulated and visualized via sensing the actual trajectories of movement derived from the body's own motion-history.

In the second stage, the dancers are asked to imaginatively project the deformation of the first image through a homeomorphism. This is introduced to the dancers as the process of fusing nearby points of the image by stretching and bending the surface of the *MDV*. As this is a complicated process, the dancers learn this particular type of visualization gradually. Through a series of training sessions they learn that the *MDV* they visualize can be easily manipulated as they shift their attention to, and feel, different types of kinesthetic qualities in their movement. This means that in this process of deforming *MDV*, the dancers imaginatively simulate the twisting, stretching, and folding of the image based on the current movement they are executing, and *renew* their kinesthetic image according to how it feels to do so. At this point the dancers are able to experience that the *MDV* they have in mind gradually changes its form while they move, resulting in less attention to how the movement would appear from a third-person perspective. The kinesthetic experience generated by this process is then 'fed-back' into the resulting

movements of the dancer, which means that the resulting movement is ‘actualised’ from the process of deforming kinesthetic images. The total *MDV* created from this actualization is experienced as qualitatively different and distinct from the prior movement, thus forming a new kinesthetic image for deformation, and so on. In this process there are no external structures involved, or any ideational projection of extensive geometric shapes, such as lines and planes. Instead the only images formed are from the bodies’ own self-movement. This way the input into the looping system of deforming/renewing kinesthetic images is connected to the output, and vice versa.

For generating movement in a context of a group improvisation the same system of feedback loop can be shared with multiple participants. Since kinesthetic images are essentially formed from the bodies’ self-movement, and in an intersubjective extension, the image can be formed from similar *MDV* formed by observing movements of other dancers. In a group, the dancers apply the same technique of forming and deforming kinesthetic images, and the volumes visualized from the movement of other dancers are then taken and mapped onto individual volumes, invoking movement that involves a degree of kinesthetic ‘empathy’. This idea connects to the phenomenon of ‘mirroring’, which was introduced and investigated both by Husserl, and is now a major paradigm in the cognitive neurosciences. As Helena De Preester (2008, p. 139) explains, “the key idea behind the mirror neuronal theory, that of the mapping of the visual perception of an action of another body onto our own internal kinesthetic simulation of the action, is easily expressible in Husserlian terminology as a mapping from the body-as-object onto the body-as-lived”.

In the process of forming *MDV*, via the vicarious exercise of the simulation of our own movement and that of others, the dancers kinesthetically experience a multi-dimensionality of dynamic qualities, which has a decisive influence on how the *MDV*

changes its form. For the purposes of this discussion it may be useful to reflect again on Sheets-Johnstone's conception of kinesthesia. By increasing and decreasing the sense of muscular and fascial connectivity within one's body, for example, the tensional and amplitudinal quality of movement can be kinesthetically experienced. This type of awareness can be trained with a movement exercise that mostly emphasizes an extension, or a contraction and a contortion of body. Similarly, directing the attention to the pressure on the skin, the tactility of the floor surface, and the contact with bodies and others, can bring new linear qualities to the movement. In my practice this aspect of perception is carefully explored through a series of tasks and experiments, which focus on visualizing the *MDV* by sensing a quality of touch. Dancers can also focus on the change in their own breathing pattern, blood flow, and temperature, which can be involved in the felt projectional quality of the movement. For the purpose of engaging with these qualitative aspects of experience for the creation of kinesthetic images, a particular type of exercise is introduced for enhancing dancers' imagination. This exercise is named *Additive* and will be explained further in Chapter Three. However, in short, it can be described as an exercise, which focuses on developing the ability to visualize a *MDV* from the dancers' kinesthetic and somatosensory experience. Through a series of training exercises, this ability enables dancers to interact with the kinesthetic images they visualize, and which are derived from the various qualitative changes as they move.

Starting with this exercise, dancers gradually build up their imagery skills, which can be used as a foundational technique for creating an improvisation performance based on this system of generating movement. In summary, there are two major aspects in creating an internal feedback loop in this method of improvisation. The first is to replace the embedding of movement in external structures with the system of feedback loop derived from the dancers' own movement, which creates a constant renewing of kinesthetic images. The second is that this looping system enables the dancers to merge their

imagined and carried-out movements in their improvisation. In this process, the multi-dimensional aspects of experiencing imagined kinesthetic qualities and movement trajectories are mapped onto the *MDV* that the dancers visualize, and in the process of deforming it, they map them back onto their own body. Once the dancers have learned this technique, the ability to visualize and deform *MDV* to generate movement can be applied in an improvisation consisting of one or multiple dancers. Besides these technical aspects, what is important is that, by dancers applying this new type of choreographic object and movement proposition, we can observe a qualitative change in the resulting movement. In the next chapter a practical investigation and the documentation of studio rehearsals and performances applying this improvisation method will be presented.

Chapter 3

Towards an Improvisation Practice Utilizing Kinesthetic Imagery

In developing a choreographic and pedagogical praxis of dance improvisation that applies the ideas of intensive space and kinesthetic images, dance events *Mix:01* and *Mix:02* have been produced, along with an analytical observation of the teaching sessions and students' learning documented throughout the rehearsal period. In the production of these *Mix* performances, which provides a framework for the choreographic and pedagogical practice, there were three main objectives. The first was to develop a training scheme to allow dancers to master the system of generating movement by visualizing and deforming *MDV*. Another was to develop an exercise from which dancers could have access to the *MDV* mapped on the bodies of others. The final objective was to create a series of exercises through which the dancers could learn to apply this system of generating movement in the context of a group improvisation.

For the dance event *Mix:01*, eight contemporary dancers participated in nine rehearsals in the five weeks between 13th January and 4th February 2013, each rehearsal lasting 2 hours and 30 minutes. For *Mix:02*, seven dancers had two rehearsals each week between 17th and 27th of June in preparation for the presentation. The passage provides a description of exercises and some findings collected throughout the rehearsals and performances of each event.

3.1 Week One: Imagining morphodynamic volume

Week One, part one: 13 January 2013

Task. A group improvisation

Goal. To reflect on how the dancers decide what movement to create in a group improvisation when they do not set cues or geometric organization of the space. The only instruction was to “feel the movements of others, and respond to them”.

Result. I observed three types of movement patterns. The first was that a dancer copied the gesture, action, or rhythmic patterns that the other dancers made. For example, when

one dancer raised an arm, the others copied this in response, or when one dancer walked across the floor, another dancer echoed this by running around the space in a circular pattern (Fig. 3-1, 3-2).

The second type of movement pattern observed was when one dancer tried to construct an abstract narrative through movement by looking at, approaching, and/or touching other dancers (Fig. 3-3). This could invite the other dancers to respond in some way, although they were often unsure how. For example, when one dancer approached the other dancers based on a momentary decision, they did not know how to respond, or whether to respond at all. Repeated, these movement patterns often resulted in a constantly disrupted and stagnant improvisation.

The third movement pattern observed was that the dancers started creating movement about an act of provocation, such as, running abruptly, shaking their limbs uncontrollably, or inviting dramatic reactions from others, for examples, the unexpected/uninvited hugging of other dancers, or playing with the hair of others (Fig. 3-4).

These movement patterns observed in this session can suggest that lack of a specific structure in an improvisation can leave the dancers confused and unsure of how to perform. The dancers applied a 'hit or miss' strategy in their improvisation, which resulted in a series of accidental actions and gestures. It invited the question of what had motivated the dancers to make a particular movement and furthermore, whether this question was relevant at all. Beginning the project with a group improvisation was useful for the dancers to reflect on their movement decisions in an improvisation. It became a good starting point for this research and would allow the dancers to later assess the improvisation method they would learn as part of this project.



Fig. 3-1: An example of dancers copying a gesture in a group improvisation.



Fig. 3-2: An example of dancers echoing the action of running.



Fig. 3-3: An example of a dancer thinking about how to respond to the movement of another dancer. The dancer (left) and the dancer (middle) are searching for a possibility to establish a relationship.



Fig. 3-4: An example of dancers (center) forming a relationship by looking at each other, and copying a gesture.

Week One, part two: 17 January 2013

In this session the dancers learned to visualize *MDV* by perceiving the trajectories of their own movement. My challenge was to discover how the dancers could visualize a form in a constant state of flux, which is different from the static idea of a line and planes. To achieve this goal, I gave the dancers a series of experiential tasks and gradually replaced the mental imagery of a line with that of a *MDV*. I made this decision for two reasons.

1. Explaining the idea of *MDV* by describing its external form may encourage the dancers to form a mental picture of the volume. In this practice, however, it is important that the dancers experience their own movement in the visualization of kinesthetic images.
2. Trained contemporary dancers, who have an understanding of ballet technique, were chosen for this project. They are already familiar with the visualization of lines and planes through exercises such as *Tendu* and *Rond de Jambe*, which trace straight and curved path on the floor with the toes. Working with the understanding that it is more efficient teaching a new technique starting from what dancers already know, I began with their ability to sense their physical extremities with reference to a classical vocabulary, giving instructions such as “what can you visualize if you are aware of every bodily surface, and not only the toes or the tips of your fingers?”

Task:01. Visualize *MDV* through perceiving and imagining trajectories of the dancers’ movement.

Goal. Dancers learn to visualize a form in constant motion by sensing the dynamic of the movement they create and by imagining and projecting its future trajectories.

Instructions.

I gave a series of instructions for this method of improvisation. For the purpose of documentation, a numerical reference is given throughout this chapter, such as I:01 for the first instruction, I:02 for the second instruction, and so on.

I:01. “Raise your arm, and draw a circle in the air”

I:02. “Make the circle as clearly as possible”.

Result of the task. When the first instruction (I:01) was given, the dancers started rotating an arm from their shoulder joint, whilst imagining a circular shape. When the second instruction (I:02) was given, the changes in dancers’ movement were observed. The dancers would, for example, raise their shoulder, creating more muscular tension in the arm, and extension in their fingers. This resulted in aligning the arm, hand and finger in a straight line so that a clearer line could be drawn in the air (Fig. 3-5). The change in visual quality observed between the movements of I:01 and I:02 may have resulted from a conscious representation of a circle in their movement. I then issued further instructions:

I:03. “Gradually shift your attention from the top of a hand to an entire surface of the arm”, “not only the outside surface of the arm, but the inside also. Feel all the surfaces of the arm”.

I:04. “Now that you are not making a circle shape with the movement, what can you visualize when you feel the entire surface of an arm rather than the tip of a finger?”



Fig. 3-5: Dancers in answer to which body part they perceive most when drawing a circle with the rotation of an arm.



Fig. 3-6: Dancers feeling the surfaces of the arm. The dancer (right) uses the outside surface of her arm in tracing an interior surface of *MDV*. This rotation of the arm was rarely found when the dancers drew a circle with their movement in I:02.

Analysis of the process. With the instruction I:03, the clear contour of the circle observed in the dancers' movement from instruction I:02 quickly disappeared, the tension in their hand and elbow relaxed, and a small rotation in the elbow and wrist joints was noticeable (Fig. 3-6). These changes may result in more freedom in the movement of the arm, enabling dancers to be more kinesthetically aware of a wider surface area of the arm. I found I:04 to be a critical stage in this task because at this point the dancers started visualizing *MDV* by sensing and imagining the trajectories of the movement rather than conceiving the shape of a circle and then representing this form in their movement. Qualities such as the hand and arm being more relaxed, and a slower rotation of the arm indicated a change in the dancer's intentionality. For those having difficulty in sustaining the image of volume, I gave the next instruction, and help them to localize the surface of *MDV* they try to visualize:

I:05. "Notice the changes as you shift your attention within the surface area. Even a small rotation in your joints affects the form you visualize"

I:06. "Involve the body surface at the side of the torso in the movement. Initiate the rotation of the arm by expanding the surface of this side of the torso. Feel the connectivity through the side of the torso, arm, and hand"

When I:06 was given, the rotation of the arm increased as a result, and the movement focused on feeling the entire side surface of the body up to the hand. The dancers slowly coordinated body surfaces between the side of the torso, arm and hand, to create a twisting and untwisting motion (Fig. 3-7).

Reflection:01. When I:06 was given, the dancers had not yet consciously started deforming *MDV* they visualized; however they had already noticed that the form they were visualizing was fluid in nature, and different from lines and planes. When asked to

draw a picture of *MDV*, one of the dancers mentioned: “I can’t draw it because the shape is constantly changing” (Fig. 3-8). From this it seems that the dancers have understood that the body area they kinesthetically ‘attend to’ does appear in the *MDV* they visualize, and that it blurs when attending to somewhere else. When the dancers began to direct their attention to the side surface of the torso (I:06), they understood that the image of *MDV* is easily affected by the dynamic quality they experience in the improvised movement.

The idea of the interaction with *MDV* achieved by sensing the dynamic of movement initially confused some dancers since they still had to learn to isolate the sensation of moving body from visual pictorial image of body parts. One of the dancers commented; ‘The experiment was not easy to follow at the beginning as I felt the whole body constantly involved’. Most of dancers are used to imagining how the shape of their body would look, however in this exercise, it was important to remind them to visualize how the trajectories of movement that create *MDV* without conceiving the body parts which are involved with the movement. This is not to do with lines or planes, but an alternative type of spatial form. Other dancer commented on her experience of visualizing *MDV*, ‘Through this experiment, I started to focus on space, the space within and also the image extended in the kinesphere and further in the room, in relation to the objects, humans in space’. With this understanding, I proceeded to the next exercise in which dancers deform the *MDV* they have visualized. I introduced one of the eight movements from *Basics*, a collection of a short looped movement phrase, which I use for teaching various combinations of muscular and fascial connectivity (Fig. 3-9).



Fig. 3-7: Dancers feeling the side surface of their torso, the entire surface of the arm and hand in visualizing *MDV*.

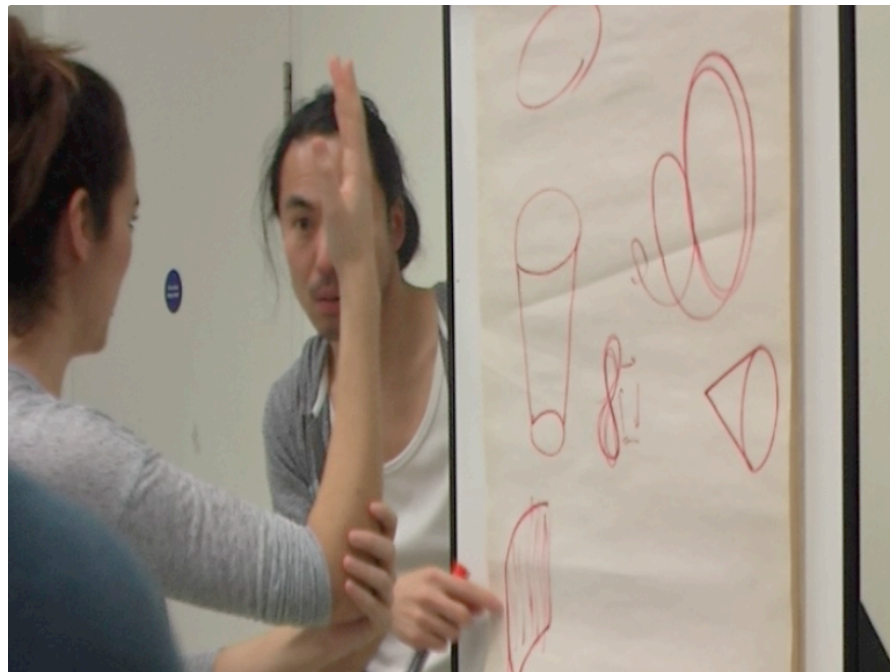


Fig. 3-8: The dancer explains her experience of visualizing *MDV* in the movement of rotating an arm.

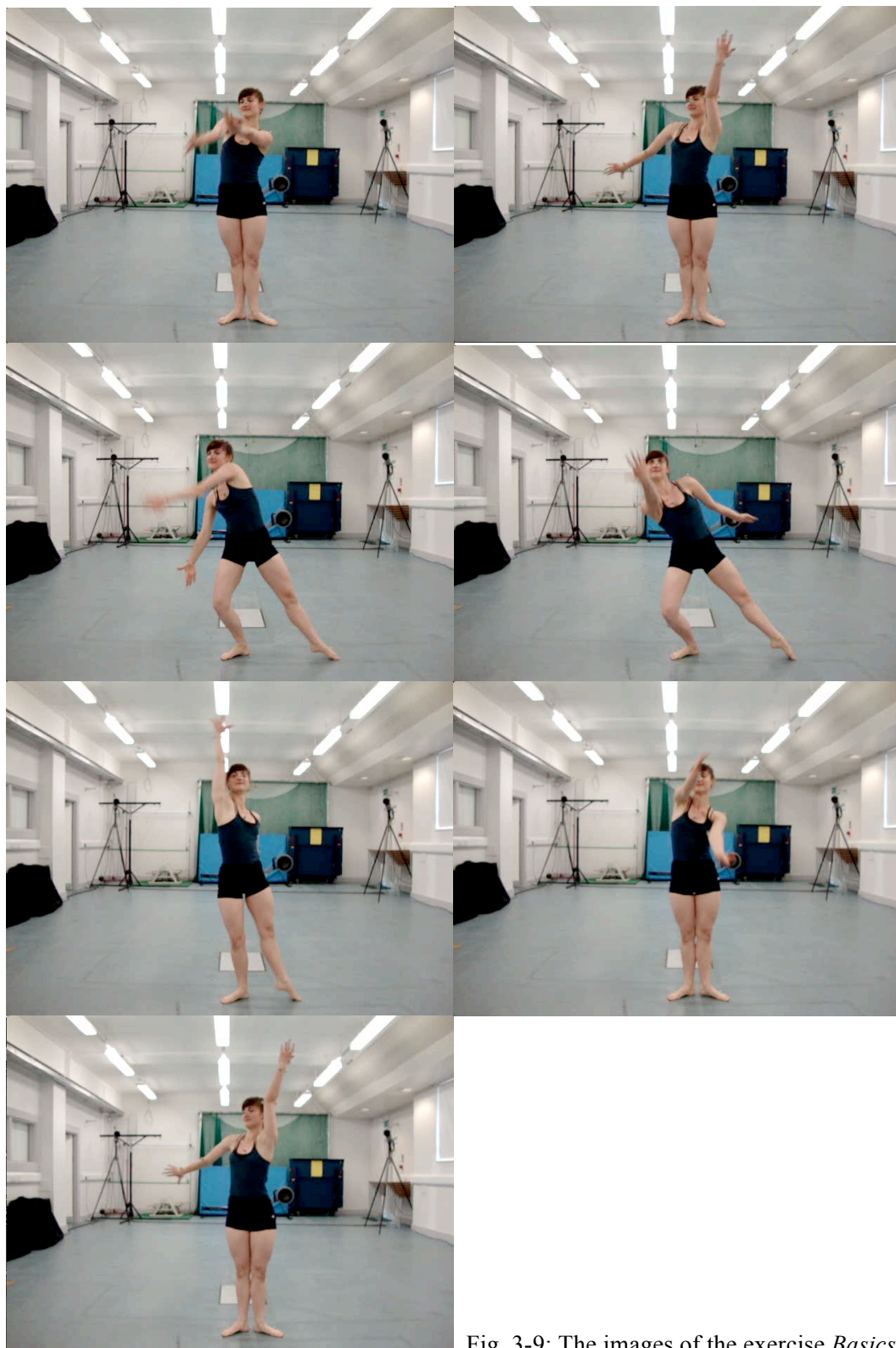


Fig. 3-9: The images of the exercise *Basics*

Task:02. Imagining the trajectories of the movements from *Basics*.

Goal. To learn to visualize *MDV* from movements which involve the whole body, not just the simple rotation of the arm.

Result. The dancers could not remember the movement of *Basics* so, at this point, I could not yet proceed to the instruction; “imagine the whole trajectories of the movement and visualize *MDV* as we did in the previous task”.

Reflection:02. Applying the movement of *Basics* in visualizing *MDV* was unsuccessful because it was too complex. The dancers became too confused in remembering the coordination of the limbs, which prevented them from focusing on the dynamic quality of the movement and visualizing the *MDV* (Fig. 3-11). I had composed *Basics* aiming for dancers to have the image of its movement trajectories all at once, however this exercise highlighted my initial misunderstanding that in my improvisation practice dancers need to visualize an image of the “mass” of trajectories in order to manipulate the form, as can be seen in the image, or histogram, from motion capture analysis (Fig. 3-10). This conceptual mistake reminded me that for subsequent deformations of *MDV* and the generation of movement, dancers would need to visualize in a more compact and plastic form. This finding led to the development of the *Additive* exercise, an exercise through which dancers can directly focus on the process of sensing dynamic qualities of movement, rather than remembering a movement phrase first and having a picture of the trajectories in their minds.

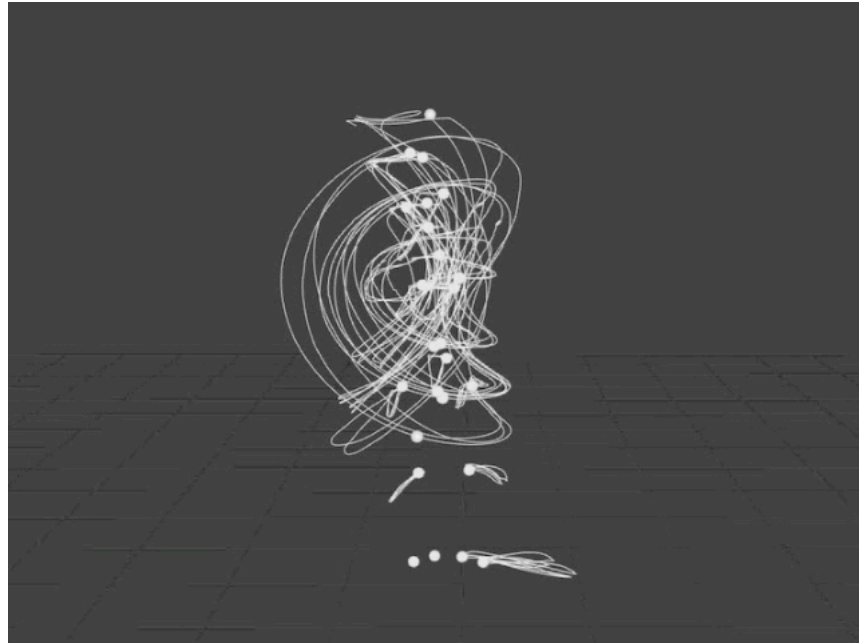


Fig. 3-10: Motion history of the movement of *Basics* represented by 3D Motion Capture.



Fig. 3-11: Learning the movement of *Basics*. Dancers look confused by the movement which involves multiple directions felt in fascial and muscular connectivity.

Development of the *Additive*

Whereas in *Basics* the dancers attempt to visualize a large *MDV* at once, in the *Additive* exercise they are instructed to continuously renew kinesthetic images by ‘folding’ it into a shape of relatively small-sized *moving* surfaces while experiencing the dynamic of the movement. I explain how dancers visualize such compact *MDV* with the example of *Additive:01* (Fig. 3-12). The dancers are given a sequence of spatial directions to feel within their body through stretching; left side torso -- front upper torso -- right inner thigh -- right side torso -- right upper torso -- neck -- right arm. To visualize the form of *MDV* in the movement, the dancers start by visualizing a small-sized surface by becoming aware of the tension felt at the [left side torso]. Then, renewing this kinesthetic image by gradually shifting their attention to the [front upper torso]. The dancers then sense the movement of stretching [right inner thigh] and renew their kinesthetic image again. When the dancers shift their attention to other body part in the movement, the tension of fascial connectivity and muscle felt in their body influences the directions that they imagine in the renewing of kinesthetic images, which I refer to as a *deformation* of *MDV*.

By repeating this process, the dancers find a way to fold, stretch, and twist *MDV* into small moving surfaces, which I refer to as ‘surfaces’ in the exercise. This process needs to be focused because if the dancers were to lose their connection with the felt dynamic quality, they would lose the visualization of *MDV* entirely. The experience of folding kinesthetic images whilst moving the body is also a preparation for stretching and twisting *MDV*, which comes later. The more the dancers are comfortable with the exercise of *Additive* the easier it becomes to emphasize the deformation of the visualized *MDV* and to generate movement.



Fig. 3-12: The images of exercise movement *Additive:01*.

3.2 Week Two: The exercise of *Additive*

Week Two, part one: 20 January 2013

Task:01. The exercise of *Additive*:01

Goal. Focus on the tension and release of fascial connectivity and muscles felt within the body, and the visualization of *MDV*.

Instructions.

I:07. Visualize a small *MDV* by attending to the tension you feel when stretching the left side of the torso towards the side surface of the left arm.

I:08. Focus on the volume you are visualizing by feeling the tension of the skin and the fascial connectivity within your body.

I:09. Gradually start renewing the image as you start to stretch the upper front surface of your torso.

This is a basic format for teaching how to renew kinesthetic images in the exercise of *Additive*. In the series of instructions I:07 to I:09 the dancers visualize a form of kinesthetic image and fold it as they shift their attention between the areas of the body.

Instructions for the exercise continue:

I:10. Hold onto the surface you visualize by stretching the upper front torso clearly.

I:11. Start opening your right thigh to feel the muscular tension from the inner thigh to the toe.

I:12. Gradually renew the surface you visualize. Continue. Feel the stretch of your right side torso.

Now that the dancers have learned how to visualize the compact *MDV*, or ‘surfaces’, from the movement, they initiate the next stage of the *Additive* exercise.

I:13. Continue the movement and keep the surface you visualize moving.

I:14. Visualize the surface *all at once* as you practice the movement. Stay connected to the dynamics you feel in the movement. Don't let the image fall apart.

Analysis of the process. After I:13 and I:14 were given, the dancers continued practicing the movement, gradually fusing the image of *MDV* visualized from the beginning, middle and the end of the 'phrase'. The movement of *Additive:01* started from stretching the left side torso, opening the right thigh, then the right side of the torso, but some dancers initiated movement from the left and right side of the body simultaneously (as seen in the dancer on the right at Fig. 3-13). Some dancers repeated the middle of the movement, gradually twisting their whole torso. One of the dancers commented on the difficulty she had in imagining the continuation of future, past, and present of movement as a whole, not as divided sequence, and stated, 'Thinking of the additive as having no beginning and no end seemed frustratingly counterintuitive. I consider the sensory, physicality and mental imagery that are used in connection during this exercise can be strengthened through practice, like a skill'. After practicing the exercise for half an hour, the dancers gradually stopped keeping the sequential order of the phrase, and focused on imagining and renewing *MDV* via kinesthetic and somatosensory experience created from their own ongoing movement.



Fig. 3-13: Dancers practice the exercise of *Additive* for visualizing *MDV*. The shape of the body visible in this image is not found in the original movement of *Additive:01*, demonstrating that dancers here do not attempt to remember the movement for future reproduction.



Fig. 3-14: Dancers twist the *MDV* they visualize from the exercise of *Additive*.

Task:02. Deforming *MDV*

Goal. Generate movement by stretching and twisting the volume visualized from the exercise of *Additive:01*.

As seen in I:07-14, dancers generate new movement as a result of folding the kinesthetic images they visualize. In Task:02 the dancers emphasize the deformation of the *MDV* by moving as they stretch and twist to create more dynamic and qualitative variety in the generation of movement (Fig. 3-14).

I:15. Now gradually stretch the surface you visualize.

I:16. Don't get too busy stretching the surface. If you stop feeling the dynamic of the movement, you can't feed it back to the *MDV*. The kinesthetic image you visualize is not just an idea.

I:17. You don't need to dance big to feel the movement fully.

Result of the task. I:16 is one of the most frequent instructions I gave in this session as the dancers often became so absorbed in the deformation that they started moving without a clear intention. It was interesting to observe that dancers became aware that if they stop attending to the dynamic qualities of the movement they were creating, immediately they lost the kinesthetic image to interact with, and that they were therefore moving without visualizing *MDV*. Once they understood the importance of keeping the interaction between visualization of *MDV* and the sensation of their moving body, it was observed that dancers' movement generally became smaller and convergent. Also, in most cases, the extension of the limbs became more relaxed, and, the muscular tension and release of the movement became a main feature.

Embodiment of the exercise of *Additive*: What to look for in dancers' movement quality

In this exercise, I asked dancers to experience an interaction between their visually imagined *MDV* and their sensory input, and evaluated dancers' embodiment of the concept with following criteria. During the exercise, the question of whether dancers successfully interacted with *MDV* or not was answered through the observation of how movement qualities changed through their bodily articulations. For example, the movement quality of the upper front torso can be *gradually* changed through to the left side of the torso. Dancers in this exercise did not suddenly change their initiation of movement, for example, by shaking a leg abruptly after the movement of the torso. This arose from the fact that this movement was created as a result of the visualization of the deformation of *MDV*, which is a spatial volume that cannot be divided, but can only change its form through connection to other local surfaces.

This continuous change in movement qualities resulted from the fact that dancers moved their body in response to the dynamic qualities felt from the movement they created, rather than initiating movement from specific body parts and verbalized instruction (such as 'let's move my foot', or 'let's jump'). What needed to be learnt through this exercise was the mechanism of interaction with visual images, rather than the reaction to a specific verbal instruction or movement idea.

Week Two, part two: 21 January 2013

This session focused on visualizing *MDV* from dancers' kinesthetic experience in tactile sensation, and started with exploring a moment of contact. In observing a movement involving touch one could divide the action into two different components, distinguishing the body part that is "touching" from the body part that is "being touched". However, I

teach dancers to focus on the surface where the touch happens, which is communicated with the following instructions:

I:18. Touch any body part of your body.

I:19. Visualize a surface where a touch happens.

I:20. Explore how you give and release pressure to the surface as you visualize *MDV*. As you press, it changes the form, maybe the volume becomes thicker, or maybe more concrete.

By consciously attending to the felt quality of the touching surface, dancers gradually stop picturing their body as “my hand touching my arm” and start visualizing *MDV* as introduced in the exercise of *Additive*. The ability to visualize kinesthetic images from body contact and to manipulate its form by changing the quality of touch is the basis of the following task:

Task:03. Dancers touch their neck with their hand in the movements of *Additive:01*.

Goal. Mix the kinesthetic experiences of touching a body part and sensing the muscular and fascial connectivity within their body in the process of visualizing *MDV*. Layer what is felt ‘outside’ and ‘inside’ in the same *MDV* they visualize.

I:21. Start the movement of *Additive:01*, holding onto the surface you visualize, and touch your neck. Mix the surface visualized from the touch with the surface visualized from the tension felt within the body.

I:22. Explore how you touch your neck finding a way that does not disturb the visualization of *MDV*.



Fig. 3-15: Mixing the *MDV* visualized from touching neck with that visualized from the exercise of *Additive:01*.



Fig. 3-16: Rolling *MDV* visualized from contact with the floor. Notice that his arms and toes are not touching the floor, rather struggling in the air to roll kinesthetic image.

Result of the task. In merging the *MDV* in their visualization the dancers initially felt their own hand to be like an external object or agent when it made contact with their neck. So the dancers needed to find a way of working to create a certain dynamic quality, which did not interfere with a consistent visualization of *MDV*, which was achieved through repetition and exploration (Fig. 3-15).

Task:04. Dancers visualize *MDV* from the contact with the floor and a body part of another dancer.

Goal. To give more variety to the way the dancers initiate the visualization of *MDV*.

I:23. Lie down on the floor and feel the contact with the floor.

I:24. Feel the touch and visualize a surface. Push the floor, yield to the floor and visualize how the surface changes its form. Try not to focus on your weight. Let's focus on a contact.

I:25. Now, twist the volume.

I:26. Fold it.

I:27. Roll it.

When I:25 was given, dancers started wriggling their body on the floor. The movement was small, but each dancer had their own way of twisting the surface they visualize (Fig. 3-16). Giving these instructions resulted in different movement dynamics: some dancers held tension within their body; another kept wriggling to visualize the roll of the surface; others kept flipping their arm repeatedly. The dancers were then instructed to visualize *MDV* from contact with another dancer.

I:28. Pair up, and touch a body part of others. Feel the touch, and visualize the surface.

I:29. Now stretch the surface.

I:30. Let's twist the surface.

When I:29 was given, some pairs slid their arms by applying more pressure on the area in an oblique direction. Other pairs started walking and running across the floor, following the touch. At I:30, since some pairs were twisting their arms without visualizing *MDV*, I gave an additional instruction:

I:31. It takes two to visualize the touch. Don't become a person who touches, or is being touched. First hold onto the surface you visualize, then twist it.

With this instruction the dancers noticed that they had become too absorbed in the movement of twisting each other's arm and had therefore started to lose the visualization of *MDV*. This resulted in generating descriptive movement, such as the movement about "twisting what we understood as the surface between us", rather than actually twisting the shared visualized surface.

3.3 Week Three: The exercise of *One on One*

Week Three, part one: 23 January 2013

Task:01. The exercise of *Additive:01*

Task:02. Starting a pair exercise *One on One*

Goal. Now that dancers can visualize kinesthetic images by perceiving the felt dynamics of self-movement, they extend this ability to form a similar *MDV* by observing the movements of others.



Fig. 3-17: Exercise of *One on One*. On the left side the movers practice *Additive* movement and visualize *MDV*. On the right side the deformers visualize *MDV* from what they kinesthetically experience from the movement observed.



Fig. 3-18: *One on One* exercise practiced by a pair of deformers. Both dancers generate movement by deforming the *MDV* they visualize from the observation of the other's movement, and, after a while, their movements gradually digress from the exercise material of *Additive:01*.

The exercise of *One on One*

In the exercise of *One on One*, I place pairs of dancers facing each other. One of the pair, *a mover*, initiates the exercise of *Additive*, whilst the other, *a deformer*, visualizes *MDV* from the movement of the mover, deforming it and using it to generate movement. It is important to note that, in this session, both dancers have practiced the same movement of *Additive:01*, which makes it easier for the deformer to imagine how it would feel to move through observing the mover.

The mover can focus on visualizing *MDV* from the exercise of *Additive*, and the deformer can focus on deforming the *MDV* they visualize (Fig. 3-17). At a later stage, both dancers become the deformer, and the original mover feeds back the dynamic quality perceived from the movement of the deformer into his/her visualization of *MDV*. In this way the roles of perceiving and being perceived are looped through the process of simulating each other's kinesthetic experience, resulting in the generation of new movement (Fig. 3-18).

First stage of *One on One*: a mover and a deformer

I:32. Movers, start the movement from the *Additive* and visualize the *MDV*.

I:33. Deformers, observe your partner, imagine how it would feel like to move in that way, and visualize the volume.

I:34. Deformers, wait until you feel like moving.

I:35. Deformers, you can start moving to support your visualization of surface. Don't become selective in which areas of the body to perceive dynamic quality from. Don't analyze which areas of the body your partner is engaging with. Instead, feel the dynamic quality of the movement as if you were experiencing it within your own body, and visualize *MDV* from what you kinesthetically perceive.

I:36. Let's swap roles.

For I:32 and I:33, the deformer visualize *MDV* by observing the movement of movers. This experience makes the deformer notice the difference when, in I:34, they visualize *MDV* by moving with movers and for simulating how it would feel like to move in that way. Through simulation, the deformer find it easier to visualize *MDV* by perceiving the dynamic of their movement as well as in imagining the trajectories of the movement of others.

Second stage of *One on One*: A deformer and a deformer

I:37. Now you are both deformer. Don't get too busy deforming the *MDV*. Feel the dynamic qualities of your partner's movement, imagine how the movement might feel, visualize the volume and deform it.

I:38, Let your deformation of *MDV* be affected by sensing the dynamic you experience from your own movement. Feel the dynamic quality of the movement and feed it back into the volume you visualize.

Reflection:04. When the exercise of *One on One* was introduced, dancers struggled to focus on their own kinesthetic experience, perceived in relation to their own body, while simultaneously engaging with the visual observation of the movement of a partner.

Dancers commented, 'It was difficult not to get carried away by the visual pattern or the rhythm of movement.' 'It was difficult for me not to become preoccupied by the form of my partner's movements. This initial preoccupation blocked any ability I had to simulate the same sensations that my partner was experiencing'. These comments show that it requires training for dancers to develop an ability to additively imagine these dynamic qualities, which they visually perceive through observation, via a simulation of the kinesthetic experience of others.

In the first stage of the *One on One* exercise, the dancers experienced two different processes of visualizing *MDV*. At I:32 deformeders started analyzing which body areas their partner focused on, and visualized the *MDV* produced. Adding to this observation, at I:33 deformeders started focusing on how they would feel if they were moving in the same way and, via the process of imaginative projection, they started forming *MDV*. To introduce the dancers to the idea of involving both visual and kinesthetic experience in their visualization, I gave instruction I:34 encouraging the deformeders to wait until they felt a desire to share the same dynamic qualities as the movers experienced in their movement of *Additive:01*. It was interesting to find that the deformeders started to enter into a state of disequilibrium just by feeling the movement dynamic of the movers when they were absorbed in their visualization of kinesthetic images.

Week Three, part two: 27 Jan 2013

Task01: The exercise of *Additive:02*

The dancers are given a sequence of spatial directions to feel within their body by stretching; left side torso -- inside surface of left arm -- upper torso -- upper back.

Task02: *One on One* exercise

From observing the previous session, it was important to take more time practicing *One on One* with the dancers, especially at the stage where both dancers become deformeders.

Reflection:05. In the first stage of the exercise of *One on One* it is important that the movers focus on the kinesthetic experience of their own movement, rather than on presenting the area of the body they want their partner to look at. When movers consciously bring attention to the body part, their movement starts to become explanatory, which makes it difficult for deformeders to imagine how the movement would feel if they moved in that way. Deformeders themselves started to notice the importance of attending to their own kinesthetic experience while deforming the *MDV* to generate movement. This

becomes an essential skill in the second stage of the exercise when their partner, formerly the mover (now a deformer), observes the movement created by deformer and visualizes *MDV*. At this point of training, the skill of visualizing *MDV* from the movement of partner has become a basis of exercise. Dancers commented on this particular type of visualization experience: 'In deformer-deformer, there is always a risk that we can lose completely the image and sensation, and that it could just become movement for the sake of movement'. 'If one of the deformer gets lost (in visualizing *MDV*) then it is difficult for the other not to get lost too. It is about exchanging, absorbing but not losing yourself in the other'. These comments showed that dancers understood the idea of creating a reciprocal relationship with the other dancers in the exercise of One on One.

3.4 Week Four: The exercise of *One on Two* and *One on Three*

Week Four, part one: 28 January 2013

Task. *One in a Circle* exercise

Goal. Deformers visualize *MDV* by observing the movement of a mover who is unaware of being observed.

One in a Circle exercise

In the *One in a Circle* exercise deformer surround a mover who is practicing the exercise of *Additive* in the centre of a circle, creating a more complex orientation of dancers than when facing each other (Fig. 3-19). Since the dancers move around the space not knowing who is observing their movement, and from which direction, they need the ability to visualize *MDV* by sensing the movement happening around them, even in the occluded side of the other dancers' body. The *One in a Circle* exercise further enhances the deformer's ability to imagine which dynamic quality they could experience if they were observing the same movement from a different perspective.

I:39. Make a circle. I play the role of a mover this time, and you are all deformers. Now I start the movement of *Additive* and visualizing *MDV*. You have experienced the same movement already, so imagine how I might feel when executing the movement. Visualize a surface and deform it.

Result of the task. The introduction of the *One in a Circle* exercise at this stage was premature and the results were not too significant. In the first stage of the *One on One* exercise, deformers knew that movers were executing the movement of *Additive* for them to visualize *MDV*. However, in the *One in a Circle* exercise, the relationship between a dancer perceiving and being perceived is not clear, which emphasizes the fact that the dynamic quality a mover experiences in the movement does not necessarily correspond to what the deformers perceive through their observation (Fig. 3-20). It is important at this stage of training that the dancers understand that the process of visualizing *MDV* by observing the movement of others is always mediated by the kinesthetic experience of their own felt dynamic qualities.



Fig. 3-19: *One in a Circle* exercise. Dancers try to visualize then deform the *MDV* by feeling the dynamic qualities from the movement of the mover in a center.



Fig. 3-20: Dancers deform the *MDV* they visualize by observing the movement of a mover in a centre.

Week Four, part two: 30 January 2013

Task:01. The exercise of *Additive:03*,

The dancers are given a sequence of spatial directions to feel within their body by stretching; surface of left arm twisted inward -- left leg stretched -- neck stretched -- side torso -- right leg -- side torso --upper front torso -- left arm.

Task:02. *One on One* exercise

Some dancers had commented that the exercises of *Additive* and *One on One* make an effective “warm-up” for their visualization of *MDV*.

Task:03. Gradually increase the number of movers, for example *One on One* to *One on Two*, then *One on Three*.

Goal. To simulate a group improvisation. In a performance there will be a situation in which dancers need to mix *MDV* they visualize from multiple dancers, and sometimes from all the dancers in the space.

Instruction.

I:40. Deformers, focus on two movers and visualize *MDV* from both of their movements.

Take your time to feel the dynamics in your body and visualize *MDV*.

I:41. Deformers, it is not easy if you try to follow the movements of two people. Try not to choose which body parts to look at. Instead feel the dynamic of their movements together and visualize *MDV*.

I:42. Deformers, observe movements from three movers and visualize *MDV*.



Fig. 3-21: Exercise of *One on Two*. Both the dancer on the left and the centre left are deformer trying to visualize *MDV* from their observation of the movement of two dancers on the right.



Fig. 3-22: Exercise of *One on Three*. The dancers are all deformer here and deform the *MDV* they visualize for generating movement. It makes a good contrast with the exercise of *One on One* (Fig. 3-17) when dancers put more effort in deforming *MDV* than in sensing the dynamic they experience in their own movement.



Fig. 3-23: Exercise of *One on One*. The dancer (right) deforms *MDV* he visualizes from the movement of the mover (left). This image shows that deformers do not necessarily need to use big movement for deforming what is visualized. Instead, it is more useful for dancers to notice subtle changes in dynamic qualities that are felt while deforming *MDV*.



Fig. 3-24: *One on Two*. The dancer on the left deforms the *MDV* that is visualized from two dancers.

Initially in this task deformeders tried to look at, and follow, two moving bodies simultaneously and analyzed the visual details of the movements observed in the two movers one by one. One of the dancers commented, 'It was very tempting to merely extract elements of each of my partners' form and combine them'. When I:41 was given, however, the deformeders noticed that it was more important to focus on their own kinesthetic experience, so that they could mix the *MDV* they visualized from the movements of two bodies. (Fig. 3-21)

3.5 Week Five: A group improvisation

Week Five, part one: 03 February 2013

Task01, 02. The exercises *Additive*, *One on One*, *One on Two* and *One on Three*.

Goal. Repeat these exercises for providing a technical foundation for dancers to visualize *MDV* from the movements of multiple dancers.

Task03. Deforming *MDV* by feeling the contraction and release of the muscles.

Goal. To increase the variety in dynamic qualities expressed through the deformation of *MDV* visualized.

During the last four weeks the dancers have learnt to visualize *MDV* by experiencing the opening, closing, and extension of fascial and muscular connectivity. This task is an experiment for the dancers to deform the *MDV* by increasing and decreasing the physical force they put into the movement.

I:43. Stretch your arm, and visualize *MDV*.

I:44. Make a fist and see how that changes the volume. Increase the contraction of muscle.

I:45. Flick your hand. See how you can deform the volume.

Analysis of the process. In I:43-I:45 I observed that the dancers ‘made a fist’ or a ‘flicking’ movement after visualizing a deformation of *MDV*, which is the contrary to what this improvisation method aims at, namely to generate movement via the process of deforming *MDV* rather than adding these details afterwards. This observation reminded me not to give the dancers instructions which indicated the resulting action, such as “flick to stretch the volume”, or “make a fist to bend the volume” while teaching this improvisation method. Dynamic changes in the created movement should not be an addition, but the result of the changes in dynamics that the dancers kinesthetically experience when they simulate the deformation of *MDV*.

Week Five, part two: 04 February 2013

Task:01. The exercise of *Additive* and *One on One*

Task:02. A group improvisation in which all the dancers are deformer

Goal. To simulate a performance by applying the improvisation method they have learnt for the last four weeks.

I:46. Spread out around the space.

I:47. Choose someone and visualize *MDV* from his/her movement.

I:48. Keep paying attention to the dynamics you feel when you move. You can move on the floor if you want, jump, make a gestural movement, move as you wish, but engage with the dynamics you experience throughout. This will make it easier for others to visualize the volume by observing your movement.

Reflection:06. When the improvisation started, the dancers kept walking around observing each other until some of the dancers noticed that they could start imagining *MDV* by sensing the dynamics of their own movement, or by feeling the contact with the floor. Once they found by themselves that they did not have to constantly observe the

movement of all dancers, they started applying what they had practiced in the exercise of *One on One* and *One on Two* (Fig. 3-26).

It was useful for the dancers to experience what would happen in the context of performance in applying this improvisation method. They understood that having seven other dancers in the space could give many possibilities from which to initiate their visualization of *MDV*. Having the group improvisation at this stage of the teaching process demonstrated a good understanding of the exercises introduced over the past five weeks.

Embodiment of the exercise of *Additive*, *One on One* and group improvisation: Eyes closed, or eyes opened

Changes in movement qualities were visible as progress was made from the exercises of *Additive*, and *One on One* through to a group improvisation, where the dancers' visualization of *MDV* shifted from a subjective experience to a reciprocal one. In the exercise of *Additive*, dancers closed their eyes and focused on the dynamic qualities felt in their movement (Fig. 3-13, 3-14). One of the dancers commented: 'I tried to really connect kinesthetically and forget about how what I was doing would look. It was very draining and I kept on tensing in the beginning of the process'. The attempt to sense their own moving body kept dancers in an introspective state, and when deforming *MDV*, dancers often created movement qualities that displayed relatively constrained ways of using space and energy.

In the exercise of *One on One*, dancers opened their eyes, simulated the sensation of the movement of others, and then visualized *MDV*. What was important to notice here was that in these exercises dancers knew that others were practicing the same process of visualizing *MDV*. Knowing that both sides of de-formers visualize *MDV* from the same

movement material also helped them to simulate the sensations others might feel within their body and imagine *MDV* even when the eyes were open. One of the dancers commented on the experience of mixing visual and kinesthetic perceptions in the exercise: ‘the way we use the information received by the eyes is really specific. In technique classes, we observe in order to reproduce a shape of a movement. In the exercise of One on One, the observation has a completely difference sense... I have tried to extend my vision to the other body in space, focusing on the energy, the sensation and the dynamic qualities’ From the exercise of *One on One*, dancers noticed that the visualization of *MDV* was formed through kinesthetic experience, which involved both real and imagined sensation. Other dancer commented, ‘nothing is wrong as long as it comes from the imagination rather than the body moving mechanically in a sort of automatic-mode’. Whether with their eyes open or closed, perceiving dynamic qualities within their own body or perceived through the observation of others, visualization of *MDV* involved both the imagination and simulation of felt dynamic qualities.

In a group improvisation, dancers created complex layers of reciprocal relationships in space. Dancers were surrounded by the presence of multiple moving bodies, which required more effort in ‘tuning in’ to a sensory experience of others. However, the complexity of the reciprocal relationships also provided dancers with more opportunities to experience a wider range of movement qualities, which subsequently became a ‘trigger’ for initiating their interaction with a newly created mental image of *MDV*. One of the dancers commented: ‘I felt we were all entities sharing a common space. It is not for me about moving in reaction to others, but focusing on the deformation (of *MDV*) in order to make the other feel what I feel. It is a constant exchange in the space’. Other dancer also commented, ‘there is a very wider range of perception in a group improvisation, the whole body and mind opens to the entire room for the first time after

having to focus on specific people (in *One on One* and *One on Two*). It feels more complete and highly unpredictable’.

In contrast with the introspective and/or reflective state of mind observed in the exercise of *Additive*, the characteristics of movements observed in a group improvisation were relatively speaking more extrovert. For example, bodies became more relaxed and free, rather than being in a state of tension. Additionally, I noticed a more expanding and exploratory way of using space, combined with a sustained and continuous way of using time. The difference in movement qualities observed in the exercises of *Additive* and *One on One* suggests that dancers’ awareness of dynamic qualities perceived outside their body can influence the way they utilize space, time and effort in their movement.



Fig. 3-25: The dancer (right) visualizes *MDV* from her contact with the dancer (middle), and also from what she sees from the movement of others, resulting in a mix of kinesthetic images.



Fig. 3-26: A group improvisation. Notice dancers keep observing attentively the movement of multiple dancers whilst engaging with the process of deforming kinesthetic images to generate movement. It is useful to compare these images with Fig. 3-1 - 3-4 in Week One.

3.6 Reflection on *Mix:01* performance

Mix:01 Performance on 05 February 2013, at Studio Theatre, Laban Creekside

Task. A group improvisation for 15 minutes, applying the improvisation method we have learned over the past five weeks.

I instructed the dancers to execute an improvisation for 15 minutes, and then gradually stop moving when they felt it was time to finish. Finding that the whole session had lasted almost 19 minutes, the dancers commented that they did not know how much time had passed when they engaged with the visualization of kinesthetic images, and had become absorbed in the process of its deformation. To determine when to finish the improvisation session together, the dancers needed to develop further their ability to feel subtle changes in the dynamic of the group while being immersed in their own visualization (Fig. 3-27 - 3-32).



Fig. 3-27: Beginning of the performance *Mix:01*.



Fig. 3-28: The dancers started their improvisation by deforming the *MDV* they imagined. Some dancers started visualizing kinesthetic images from their contact with the floor. At this moment most dancers were engaging only with their own movement because they started the performance from the position of standing still.



Fig. 3-29: In this performance it was sometimes observed that dancers were cramped in a small area without much movement happening. It seems that the dancers were close to each other, but not sensing the dynamics of the movement, which makes it difficult to visualize *MDV*.



Fig. 3-30: At times the dancers were spread around the space, but worked individually and did not create interactive relationships.



Fig. 3-31: We can observe a difference between this image and Fig. 3-28 and 3-29. Here, the dancers were spread out around space, creating interactive relationships by observing the movement of others for deforming *MDV*.



Fig. 3-32: End of the performance. The dancers gradually stopped moving.

Mix:02

The second series of rehearsals was held over a two week period between 17th June and 26th of June 2013, resulting in the dance event *Mix:02*. Based on the findings and reflections collected during the studio practice of *Mix:01*, there were three points I wanted to investigate further during the rehearsal sessions.

Firstly, I aimed to develop new exercises through which dancers could express a wider range of dynamic qualities in the movement they generated in improvisation, for example creating more variety in the way they use energy and speed. In *Mix:01*, the dancers often experienced a stagnant phase when generating movement and started repeating the same rhythmic patterns, such as flicking the arms, shaking of the head, and rubbing their torso continuously. One of the dancers commented on their habitual use of repetitive movements, ‘Repetition was sometimes a way not to let go (visualization of *MDV*) but it was also a trap. In fact, while the body is getting comfortable in the repetition, movers are carrying on creating different dynamic in movement. I can then, easily disconnect myself from others’. These repetitive actions might suggest that some dancers were unconsciously limiting the way they interacted with the *MDV* they visualized.

Secondly, it was observed that the dancers needed some time at the beginning of the performance to start their visualization of *MDV* from the movements of others, which resulted in a slow pace, because the dancers would wait for someone to initiate moving and the deformation of the *MDV*. One of the dancers commented on this issue: ‘I remember how it was difficult to start all together from stillness. It was difficult to feel everyone and start all at the same time’. (Fig. 3-27) For the presentation of *Mix:02*, the dancers had a series of exercises through which they learnt to effectively tune in to the dynamic quality among the group through the observation of small non-danced

movements such as breathing patterns, a turning of the head, swaying of arms, etc. In particular, we focused on the walking exercise discussed in Week Seven (page 72).

Finally, the spectatorship and the context of presenting the performances called *Mix* needed further investigation. In this improvisation method the dancers are fully absorbed in the act of deforming *MDV*, resulting in the creation of movement, which could perhaps leave the audience questioning how they can personally relate to the dance event. One of the discussions at the Q&A following the performance concerned how the audience could share the kinesthetic experience which the dancers feel and express through their improvisation, and some of the audience members questioned if that is in fact part of the aesthetic of the performance of *Mix*.

In studying the types of spectatorship *Mix* performance potentially has to offer, I created a performance environment that was different from the previous presentation, *Mix:01*. Unlike the first performance, which was observed from a single vantage point, the audience members of *Mix:02* were invited to place themselves surrounding the performance space, and were also encouraged to walk around and change their perspective towards the dancers' movements. Further details of this performance setting will be discussed later in the chapter.

3.7 Week Six: Experimental tasks

Week Six, part one: 17 June 2013

Task:01. A group improvisation that occurs without applying the method of generating movement by visualizing and deforming *MDV*

Goal. To understand whether the dancers could choose not to use this improvisational method, which might therefore give an indication of how skillfully the dancers can control the visualization and deformation of *MDV* at this point of the training.

I:49. Let's have an improvisation without using the method we learnt before. Don't visualize *MDV* and deform it.

I:50. How do you decide to move? What determines the movement you create?

Result of the task. This experiment showed that the dancers were able to execute a group improvisation without applying the method of improvisation that I had been training them in throughout the previous rehearsal period. It was interesting to discover that the movements created had almost the same features that we observed on the first day of the *Mix:01* series, when the dancers had a free improvisation and copied the gestures and actions of the other dancers, and then tried to develop a narrative by forging relationships, creating abrupt and unexpected movements (Fig. 3-33, 3-34).



Fig. 3-33: Dancers in the group improvisation consciously not applying the method of visualizing and deforming *MDV* for generating movement which they have learnt through this project. In the improvisation there were movements such as copying a gesture and developing a narrative relationship through approaching and/or touching other dancers, which were features discussed in Week One (Fig. 3-1 - 3-4).



Fig. 3-34: It is interesting to contrast this image with that of the performance *Mix:01* (Fig. 3-28 -3-30). The dancers here look at or touch other dancers, but without the intension of visualizing kinesthetic images.

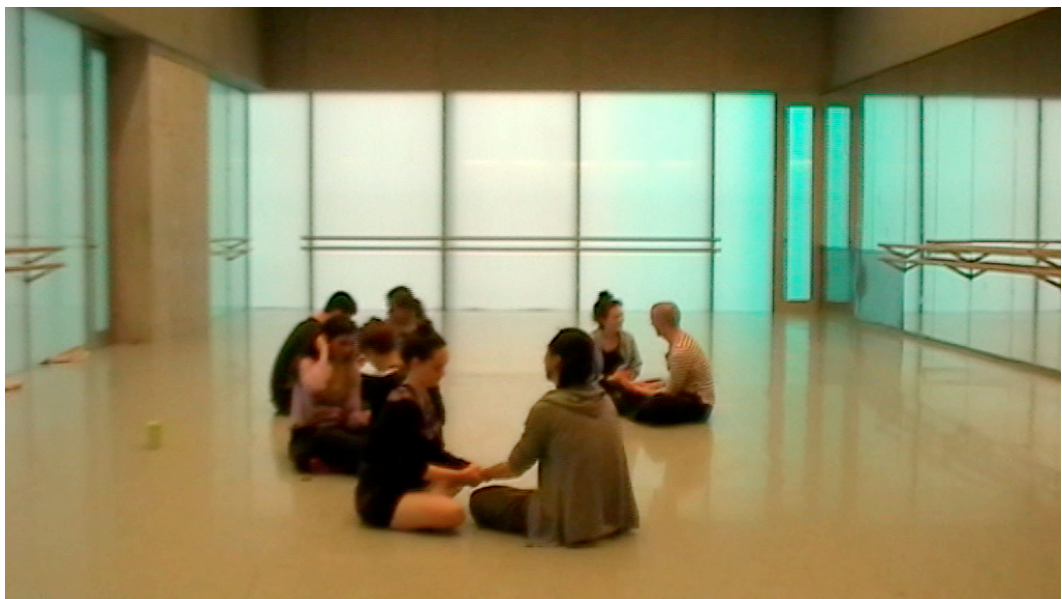


Fig. 3-35: An experiential task. The dancers felt the pulse of others, and were instructed to visualize an image of *MDV* from the movement.

Task:02. The dancers feel the blood flow by touching their own wrist and then visualizing *MDV*.

Goal. To understand whether the dancers can visualize *MDV* by consciously attending to stimuli related to involuntary movement and physiological functioning of the body.

I:51. Touch your wrist, or anywhere you feel the blood flow. Not focusing on the interval between pulses, but feel the movement of the flow. Feel its temperature.

I:52. Try to visualize *MDV* from the movement.

I:53. Try to make the pulse faster by changing how you touch, and deform *MDV* you visualize.

The dancers could visualize *MDV* by imagining the movement of their pulse of blood, but they found it difficult to start deforming the volume. This exercise of visualizing *MDV* from involuntary movement was new to the dancers, so this may need further repetition.

Week Six, part two: 20 June 2013

Continuing from the previous session, two experimental tasks were introduced to see how dancers could visualize *MDV* by consciously attending to stimuli relating to involuntary movement and physiological functioning of the body, such as changes perceived in the patterns in blood flow, breathing, and body temperature.

Task:01. Touch another person's wrist and visualize *MDV* by feeling the movement of blood flow.

1:54. Touch your partner's wrist and feel its pulsating movement. Visualize *MDV*.

1:55. Stretch and twist the form. Imagine you can make the pulse faster, then slower by deforming the *MDV* you visualize.



Fig. 3-36: An experiential task. Dancers try to visualize *MDV* by sensing the contact with air.



Fig. 3-37: An experiential task. Dancers feel an air on the surface of their body and visualize *MDV*.

Analysis of the process. It is important to clarify that the dancers in this task were making physical contact with the body of others when visualizing the *MDV* by feeling the movement of blood flow (Fig. 3-35). At I:54, the dancers may not have been conscious of the tactile sensation of touch because they were instructed to focus on the pulsating movement of the vein. The dancers could relate this experience with the exercise of visualizing *MDV* from touching their own neck (I:22 in Week Two), and learned that they can engage with touch in different ways.

Task:02. Dancers visualize *MDV* by feeling the air as they run (Fig. 3-36, 3-37).

I:56. Open your arms and run across the floor. Feel the air as you run and visualize *MDV*.

I:57. Walk around the space, try different directions, for example you can walk backwards, sideways. Feel the air as you walk, how it changes the form of the *MDV* you visualize.

Task:03. Visualize *MDV* from the movement material of *Additive* that we practiced five months ago.

Goal. To test how dancers engage with the movement they learned previously in the exercise of *Additive*. Since the main purpose of practicing *Additive* was to visualize *MDV* from the movement, the dancers were not instructed to remember how the movement looks as if it were a danced sequence. It was my intention to observe how much the dancers remembered the kinesthetic experience they had before, and to see how they would respond to the kinesthetic images when they practiced the exercise again.

I:58. I will demonstrate the movement we practiced in Week Two.

I:59. Start visualizing *MDV* when you feel ready.



Fig. 3-38: Dancers revisiting the movement of Additive:01.



Fig. 3-39: Dancers practicing the movement they learnt five months ago. This experiment might suggest that dancers had retained the experience of engaging with the felt dynamic quality of the movement and were able to an access to kinesthetic images quickly.

Result of the task. This task showed that the dancers regained access to the kinesthetic image they had formed five months ago by seeing my demonstration of the movement twice (Fig. 3-38, 3-39). It was interesting to observe that the dancers immediately started imagining *MDV* from the movement of *Additive:01* because they already knew how it felt to move in that way.

3.8 Week Seven: The exercise of walking

Week Seven, part one: 24 June 2013

Task:01. Practice the *Additive, One on One*, without detailed instructions.

Additive:04. The dancers are given a sequence of spatial directions to feel within their body by stretching; left upper side torso -- left side torso -- right back thigh -- right back calf -- right side torso -- right arm outside surface

Goal. To observe the level of understanding the dancers have about my improvisation method by testing if they can practice the core exercises of this training without constant supervision.

Result. It was observed that in this task they showed technical competence and an understanding of the structure of my practice.

Task:02. An exercise of walking

Goal. The dancers learn to visualize *MDV* by sensing the dynamic qualities perceived from the walking of others in a short period of time. Practice the initiation of deforming kinesthetic images as a group, not led by one dancer.

I:60. Spread out around the space and start walking.

I:61. Let's aim to reach the stage of focused visualization and deformation of *MDV* to generate movement in less than one minute.

I:62. Stop walking.

I:63. Let's start again. Do not look at each footstep. Feel the dynamic of walking as a group. You might want to slow down your walk.

1:64. Walk and start visualizing *MDV*.

I:65. Twist, and fold it when you are ready.

Result of the task. At the beginning of this task, the dancers found it difficult to visualize *MDV* from the group walking, unlike in the movement of *Additive* exercise where the dancers could easily imagine the trajectories of the movement and feel the dynamic quality of the movement by stretching and opening their body. On one of the attempts, some dancers started deforming the *MDV* they visualized earlier than others, resulting in the rest of the group sensing a change in the dynamic quality from which to visualize their kinesthetic images. I gave these further instructions:

I:66. Try not to become the one who leads the initiation of deforming *MDV*. Find the moment where you all start deforming together.

I:67. While walking, already start imagining how it would feel to deform the *MDV* you visualize.

The dancers became more attentive as they walked. On the fifth attempt of the task they found a focused deforming of *MDV* in almost fifty seconds (Fig. 3-40 - 3-45).



Fig. 3-40: Exercise of walking. The dancers started visualizing *MDV* as they walked by sensing the dynamics created by the movement of the other dancers.



Fig. 3-41: The dancers kept walking. They were instructed not to lead the group as individuals in initiating movement generation.



Fig. 3-42: The dancers started the process of deforming *MDV*.



Fig. 3-43: Sensing the dynamic of the group has changed, the dancers gradually involved more of the body for deforming *MDV* they visualized.



Fig. 3-44: The dancers started deforming *MDV*, which is easier to do by observing the movement of others.



Fig. 3-45: The dancers visualized *MDV* and deformed it by feeling the dynamic quality of their own movement as well as the movement of others. The dancers aimed to reach the point of consciously deforming kinesthetic images in under a minute from the beginning of walking.

3.9 Reflection on *Mix:02* performance

Mix:02 Performance on 27 June 2013, Studio 10, Laban Creekside

The performance started with seven dancers walking around the studio. Audiences were invited into the studio space, and to choose their perspective to look at the dance event by sitting on the floor, standing against the wall, or walking along the edge of the performance space.

In this performance, the dancers made a good transition from walking to the beginning of deformation of *MDV*, then consistently generated movement based on the improvisation method they have been learning since January. Their improvisation continued for fifteen minutes, and finished when the dancers gradually stopped moving as a group (Fig. 3-46 - 3-49). There was then a Q&A, which followed a short break.



Fig. 3-46: The beginning of the performance *Mix:02*. The dancers walked and visualized *MDV*.



Fig. 3-47: The dancers applied all they had practiced in the exercises throughout the project. Movements similar to the visual result observed in the exercise of *Additive, One on One* and contact with floor were seen in the performance.



Fig. 3-48: An example of the dancers applying the exercise of *One on Three* in the performance.



Fig. 3-49: In *Mix:02* there was no single front because the audience were surrounding dancers, changing their location to observe from a different perspective. In this performance environment, the dancers were still able to focus on sensing the dynamic quality of their own movement, and kept an interactive relationship with the others.

Reflection:07. During the Q&A some audience members expressed their wish to understand which movement made a single dancer visualize *MDV* from their observation of other dancers. I thought this comment could help to summarize the question relating to the role of the audience of the dance event *Mix*. However, it is not a goal of this research to limit the possibilities of how this improvisation method should be applied in performance, as it would contradict the nature of improvisation, and his method, if the performance existed as a presentation of “who deforms what”. I believe that this would mislead the audiences’ perception of what is expressed between dancers. In fact, the dancers in this improvisation are not concerned with how the movement created influences the movement of the other dancers. Instead they are immersed in their own kinesthetic experience, and actualizing movement via the process of deformation, which, as a result, in turn influences the movement of others. What is created through the group improvisation is an environment where all dancers are in a reciprocal relationship, sharing a feeling of togetherness.

Conclusion

In this concluding section, I will present some perceived limitations of the research project in relation to the questions and comments collected from my dancers and audiences, as well as from my own reflections. This conclusion will also suggest possibilities for some future research and will outline my future interests in teaching this improvisation method in terms of the continuation of both my research and personal practice.

Limitation 1, Exercises for non-dancers need to be developed

Throughout this research project the teaching method for improvisation was developed based on the observation of mainly trained contemporary dancers. But in theory, this improvisation method is also applicable to other types of dancers or even amateur dancers because its technical basis relies on an ability to form mental imagery and an ability to focus awareness on sensory experiences. However, most comments from dancers suggested the advantage of having prior experiences and knowledge of the somatic practice of movement when tackling the tasks introduced throughout the training. One of the dancers explained how she managed to visualize *MDV* for the first time in the exercise of *Additive*: ‘I really focused on the sensation, and my really relaxed body, which made something click and allowed me to not doubt anymore, trusting both my sensation and imagination... Time, practice and calmness made me realize that there are no limits if you really imagine it (deformation of *MDV*) in your mind’. This comment showed the importance of the ability to engage with both sensory awareness and kinesthetic perception in movement, which these particular dancers became familiar with while training as contemporary dancers. This dancer further commented that she had had to set goals different from other types of improvisation, ‘(In this improvisation) there has to be an acceptance of the fact that we truly have a different way of perceiving, so that aesthetic judgments can be put aside’. During this research project, dancers experienced tasks that involved some key concepts, which are related to the learning context of

somatic education, such as personal exploration, self-acceptance and non-competitiveness (Batson, 2009). Through training dancers often related the exercise with the technique and understanding involved in somatic approaches to movement they had already experienced. The fact that it took five weeks for them to successfully embody the improvisation method suggested that additional teaching sessions for providing somatic education would be perhaps required if participants were from a wide variety of dance backgrounds.

Limitation 2, The image of 3D Motion Capture lacks a visual representation of the dynamic qualities felt within a dancers' body

The image of 3D motion capture (Fig. 3-10) was a mapping of what we call the *MDV* and it was useful pedagogically to initiate dancers into thinking about *MDV*. It was important for teaching this improvisation method that dancers understood that *MDV* was a kind of 'moving picture' of three-dimensional volume created by the future, past and present continuation of movement, and was fundamentally different to alternative conceptions of movement drawn from the visualization of lines and planes. However, the limitation of using this technology was that it only captured the trajectories of movement itself. Its visual content obviously cannot represent the sensations of a moving body, such as the expansion, contraction, tension and release of a body: nor did it convey a sense of pressure of the skin its temperature.

MDV is formed through kinesthetic imagery, which is both visual *and* non-visual, therefore a visual 'moving picture' would not fully communicate the felt aspect of dancers' experience in the visualization of *MDV*. However, it could be an effective tool, especially for amateur dancers, if there was a way to visually translate felt dynamic qualities of movements into a 3D image. This technical limitation suggests therefore a possible future collaboration between researchers and artists in digital media to

investigate the possibility of creating a real-time visualization of *MDV* in interaction with a dancers' kinesthetic feelings and sensations.

Limitation 3, Visualization of *MDV* from other stimuli, such as sonic proposition, was not investigated

This research project focused on a movement improvisation organized by dancers' internal interaction between visual images and the sensation dancers perceived from their kinesthetic experiences. In the training sessions and performances, dancers visualized *MDV* based on their visual and kinesthetic perception, and not from other senses.

It may be possible to observe other types of movement qualities in an improvisation if dancers are trained to visualize mental images related to other sensory modalities.

Through training, dancers can perhaps extend the idea of a movement-generating image to other type of stimulus, such as propositions based on e.g. sound and light, and generate movement from the same process of interacting with *MDV*.

I am interested in how dancers' deformation of kinesthetic images and improvisation based on this method can be influenced by hearing sound, being situated in specific cities, or being surrounded by projected images. With the aid of digital technologies, it might be possible to create a real-time interactive performance that involves dancers' generation of movement and these other sources of choreographic stimuli. Having a dialogue with practitioners and researchers in other disciplines might suggest possibilities for future collaborative projects.

Further investigation of how this method can be applied in choreographic practice requires more practitioners of the improvisation method. One of the characteristics of this is that it is structured by the dancers' own experience of moving and feeling, irrespective

of which dance style they have previously trained in. Once a shared practice of generating movement from visualizing and deforming kinesthetic images is understood, dancers can organize a group improvisation without having had a rehearsal, setting cues or sharing movement vocabularies. This could perhaps create more opportunities to bring dancers together in creating new improvisation methodologies.

Some dancers found the improvisation method relevant to their own dance practices. I received comments such as, 'I was actually able to use this method in my other classes and commissioned work, as a support' and 'now we have another way to communicate movement to each other, no longer based on body shapes. It can definitely open possibilities to movement'. I am now interested in how the dancers who trained with this method will creatively use the improvisation in their own choreography and teaching practices. These ideas could be possibilities for future continuation of the research, and more specifically, following the dancers' individual dance practices, and documenting and analyzing how they apply this improvisation method in their creation of dance.

Glossary of Terms

Additive

The exercise named *Additive* is one of the core exercises practiced throughout the training stage. In this exercise dancers focus on building up their skills to visualize a *MDV* via the kinesthetic and somatosensory experience created from their own ongoing movement.

The exercise materials of the *Additive* exercise involve movements of stretching and contracting, through which dancers focus on the kinesthetic experience of the tension and release of muscular and fascial connectivity.

Extensive and intensive

In the area of physical science we can observe two types of physical properties of a substance. One is the extensive properties of a substance, such as length, volumes, and weight. These properties depend on the size of the material, and can be added, divided, and measured. For example, the volume of a cup of water can be divided in two cups of half volume. In contrast, there are intensive properties of a substance, such as temperature, density, viscosity, and elasticity. In contrast to extensive properties, intensive properties preserve the state of a physical system irrespective of a variant of the entire system. For example, water starts boiling at the same critical point of 100 degrees irrespective to the amount of the size of the cup, whereas the amount of energy it requires for boiling water varies because it is an extensive property. The *International Union of Pure and Applied Chemistry* defines the terms as ‘A quantity that is additive for independent, noninteracting subsystems is called extensive’ and ‘A quantity that is independent of the extent of the system is called intensive’ (Cohen et al, 2007, 6).

Extensive space and intensive space

Manuel DeLanda introduces the ideas of *extensive space* and *intensive space*, which are two different ways of conceptualizing space related to human subjectivity (DeLanda, 2005, 80). For example, we can organize space as extensive space by fixing and dividing

lengths and volumes between points and other metric properties such as lines and planes. By contrast, we can also categorize the same space as intensive space in terms of other operations like stretching, folding, bending and other types of continuous transformation (DeLanda, 2002, 22). It is important to mention that these terms represent ways we think about space, and do not suggest that the property of extensivity exists in space as an object in itself.

Feedback loop of kinesthetic image

In this improvisation method, dancers create movements by imagining the stretching, twisting and folding of an image of *MDV*, and these deformations of the image can be then re-internalized within their body itself, which in turn produces a new kinesthetic image, resulting in a process that creates an internal feedback loop. When dancers somatically internalize this looping mechanism through training, their generation of movement can be structured by the deformation, twisting or stretching of the kinesthetic image that the dancers produce from their own ongoing movement.

Homeomorphism

In mathematics, a *Homeomorphism* is a mapping which does not preserve distances, and in which nearby points in space can become fused through stretching and folding unlike isometric maps, which preserves the distance between two points under transformation. Under the homeomorphic operation, it is possible that many of the unique shapes found in extensive geometry, such as the triangle, square, and circle can become the same figure through a deformation process involving a homeomorphism.

Improvisation Technologies

Improvisation Technologies (Forsythe, 2003) consists of a series of over sixty video lectures in which a choreographer William Forsythe demonstrates and introduces the key

principles of his creative strategies of systematically generating movement material.

Although among the lectures there are a few exceptions, such as ‘avoidance of own body position’ (dancers create movement by imagining their own body and avoiding the position) and ‘room writing’ (dancers generate movement by describing an interior of a room and playing with its visual detail, for example, throwing a door knob), most of his improvisation method is organised by two spatial concepts, which are a decentralisation of the body and an isometric operation. The application of a decentralisation provides dancers to imagine a point on any location on a body as an arbitrary ‘centre’, which enables them to also conceptualize a coordinate in relation to the point. Dancers then incorporate an isometric operation through which a form of movement is spatially translated, reflected and rotated according to their relationship with the centres spread throughout the body. Following this procedure enables dancers to mimetically interact with geometric forms, such as lines, planes and volumes, which they imaginatively project in space and also on their body, and as a result generate movement.

Isometry

In mathematics this is a type of transformation or mapping in which metric distances are preserved. These spatial operations include rotation, translation and reflection.

Kinesthesia

In this research project the term kinesthesia is discussed in relation to dancers’ felt awareness of their own movement, which involves not only an awareness of the positions and directions of the movement, but also the perceptual experience of felt dynamic quality of the movement. Sheets-Johnstone claims that we can find four basic aspects of felt qualities in our kinesthetic experience of our own movement if analysed reflectively, which are the tensional, linear, amplitudinal, and projectional qualities (Sheets-Johnstone, 2011, 123). These qualities are related to our sense of effort, of expansiveness and

contractiveness, and the way we release force and energy. Unlike the sense of vision, kinesthesia requires a type of conscious reflective intention for it to be experienced, and in terms of dance, this conscious attention to the felt dynamic qualities becomes a central issue because, as Sheets-Johnstone explains, ‘dance is grounded in the qualitative intricacies, complexities, and possibilities of human movement’ (11).

Kinesthetic Image

The term *kinesthetic image* can be described as an image that is formed via kinesthetic perception through visualizations and simulations, which involve sensations of the moving body and the felt dynamic qualities that are kinesthetically perceived from the movement. Neuroscientist Antonio Damasio argues that mental images are not just related to ‘pictures in one’s head’, and indicates that there can be images or imaginings that are formed via other sensory modalities other than visual, such as auditory and olfactory (Damasio, 1999, 318). The creative use of kinesthetic image can be observed in the choreographic process of William Forsythe and Wayne McGregor, and also in somatic movement education, such as *Body-Mind Centering*, *Ideokinesis* and *Skinner Releasing Technique*.

Morphodynamic volume

The term morphodynamic volume (MDV) can be described as a three-dimensional volume in a constant state of flux (Fig. 2-1) which is derived from the past, present and future volumes created by the movement of the body in totality (its motion history and possible movement continuations). In my improvisation method, the kinesthetic images dancers utilize are derived from this *MDV*, which is created by imagining and simulating possible movements of the body itself.

One on One (Mover and Deformer)

The exercise of *One on One* is another core exercise of the method. This exercise is practiced with a pair of dancers facing each other. One of the pair, *a mover*, initiates the exercise of *Additive*, whilst the other, *a deformer*, imagines a *MDV* formed from the movement of the mover, deforming it and using it to generate movement. In the advanced stage of the training, both dancers become the deformer, and the original mover feeds back the dynamic quality perceived from the movement of the deformer into his/her imagination of *MDV*. In this way the roles of perceiving and being perceived are looped through the process of simulating each other's kinesthetic experience, resulting in the generation of new movement (Fig. 3-18, p. 95).

Vicarious simulation

The idea of vicarious simulation can be introduced to explain the imaging process that is formed via kinesthetic perception. Evan Thompson questions the familiar idea involving 'images' of all kinds, whereby they are seen as some kind of mental picture constantly intermediated and analysed by the mind (Thompson, 2007, 291). Thompson claims that imagination is instead an activity in which we "visualize an object or scene by mentally enacting or entertaining a possible perceptual experience of that object or scene" (269). This means that when we imagine something we have the ability to simulate the experience of that something in perception, whether it has actually happened or not. Thompson's idea of vicarious simulation suggests that we can form kinesthetic images in two ways. One is that we can form images that relate to the qualitative nature of our own actual movement when we move. The other is when we form kinesthetic images that relate to how we might imagine our body to feel or look *if it were to* move in such a way.

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